



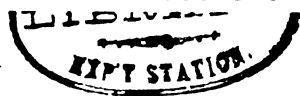
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THE
JOURNAL OF HORTICULTURE,
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A CHRONICLE OF THE HOMESTEAD, POULTRY-YARD, APIARY, & DOVECOTE.

CONDUCTED BY

GEORGE W. JOHNSON, F.R.H.S., AND ROBERT HOGG, LL.D.

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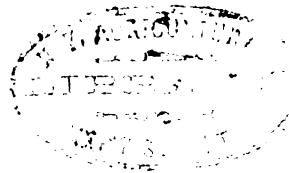
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HOUSEHOLD ARTS, by several Ladies.



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TO OUR READERS.

— x —

IN vain have we tried to compose something new for this our periodical address; we must therefore hope that you will accept our thanks for your continued and increased encouragement. It enables us to go on cheerfully and with renewed resolution to use our best powers, and to spare no outlay for obtaining the earliest and most reliable information relative to our legitimate subjects. "When I have endeavoured to be successful I am contented," were the words of a modern statesman, and as we think he was correct we venture to adopt those words and to feel as he does.

THE EDITORS.

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WEEKLY CALENDAR.

WEEKLY CALENDAR.																		
Day of Month	Day of Week	JANUARY 3—9, 1878.	Average Temperature near London.			Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.	Clock before Sun.		Day of Year.	
			Day.	Night.	Mean.	h.	m.	h.	m.	h.	m.	h.	m.	Days.	m.	s.		
3	TH	London Institution at 7 P.M.	43.4	31.1	37.1	8	8	4	1	8	34	3	35	0	4	48	3	
4	F	Geologists' Association at 8 P.M.	42.6	31.5	37.0	8	8	4	3	9	5	4	50	1	5	16	4	
5	S		41.8	30.4	36.1	8	8	4	4	9	28	6	5	2	5	43	5	
6	SUN	EPHAPHY—OLD CHRISTMAS DAY.	41.5	29.5	35.0	8	7	4	5	9	45	7	18	3	6	10	6	
7	M	Victoria Institute at 8 P.M.	41.6	29.0	35.3	8	7	4	6	9	58	8	29	4	6	36	7	
8	TU	Royal Medical and Chirurgical Society, 8.30 P.M.	40.9	30.0	35.5	8	6	4	8	10	9	9	39	5	7	1	8	
9	W	Royal Society of Literature at 4.30.	41.3	31.1	36.1	8	6	4	9	10	20	10	48	6	7	28	9	

From observations taken near London during forty-three years, the average day temperature of the week is 41.1°; and its night temperature 33.3°.

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A NEW YEAR'S EXPECTATIONS AND COUNSELS.

LONGFELLOW, the American poet, has described the advance of a child's life under the image of a brook gradually growing into a river, the most interesting point being the time when the girl is just, only just, passing—at that instant passing—into "a woman." She is supposed to be dreading the future, and not wishing the sweet, sweet girlhood to slip so soon away.

"Standing with reluctant feet
Where the brook and river meet,
Womanhood and childhood fleet.

"Gazing with a timid glance
At the brooklet's swift advance,
On the river's broad expanse."

She seems to belong to both, and does not wish to be parted from the past. Something of this same feeling we all, I think, more or less have on the opening days of a new year. We do not wish at first to be identified with it: we meet it with "reluctant feet." We cling to the old year. We at best wish ourselves to belong to both. We love the past, we shrink from the future. If the past year has been past, very smooth, or even joyous, to us, we naturally fear that the next may not resemble it. If the past year has been cloudy, we fear the clouds may gather still heavier and the days be darker in the future.

Nationally no new year, perhaps, has been looked forward to with greater doubt than this. A kind of tremor passes through us, as we say, "I wonder what will happen to us before the year is over. Shall we be actually at war, or only, as last year, be lookers-on and hearers, and almost, through the picture press, seers of its horrors, or worse, far worse, participators?" Leaving these matters as being out of our range, we will turn our thoughts to the subjects embraced by our Journal. Peace and prosperity are wonderful helps to horticulture, and yet even in the most troubled times, and with those persons most exposed to trouble, gardening has proved to be a solace and resource, though we may be surprised that such could possibly find time for horticultural thoughts and plans; yet Mr. Thorne in his excellent "Handbook to the Environs of London" tells us that at Wimbledon House, where Charles I. was frequently a resident, and took much interest in the gardens—and, mark it—he only a few days before his trial ordered some seeds of Spanish Melons to be "planted in his garden at Wimbledon." Surely gardening must have, like music, a charm to soothe the troubled breast. And then all sorts and varieties of men—men with minds, and feelings, and opinions most opposite—have found a like charm in a garden. The very place I have just mentioned, Wimbledon House, passed from Charles into the immediate possession of General Lambert, a stern republican warrior, a hero at Marston Moor and other like battles, and yet this man, so different in feelings, and habits of thought, and opinions to the King, was, we are told, "as fond as the King of the gardens, was, we are told, as fond as the King of the gardens, turning florist, and possessing the finest Tulips and Gilliflower flowers that could be had for love or money." Then also,

when, as upon the King, so upon General Lambert, dark days came and he was banished for life to the isle of Guernsey, "he there lived upwards of thirty years, amusing his leisure with horticulture." I could scarcely, I think, choose two more striking instances of the power and charm of a garden over men of opposite principles. It is the same still. Outside of Birmingham the villa residents are as interested in their gardens as similar residents outside of Bath, and yet their business occupations are so different.

Then, again, I have noticed that although there are many men in professions and trades who have no love for their callings and merely follow them for a living, yet there are always two exceptions—those who earn their bread by music or gardening. Passing from the former, let me take the latter. Gardeners everywhere, and I think in all circumstances, love their profession; they, though often hard-worked, and overweighted with families perhaps, yet delight in their work and its surroundings. Who beside a gardener reads as much about his business? Tradesmen, as a rule, do not spend their winter evenings reading about their trades; they have a fancy (perhaps gardening) of which they love to read, but a gardener reads his gardening books, aye, and his *Journal of Horticulture* from the mere pleasure, as well as because of its help in his calling. I have often noticed a gardener pause in his work to admire some special beauty in a flower, or handle lovingly and with becoming pride some particularly good fruit or vegetable of his growing. Gardeners, too, have not unfrequently some special pet flower or fruit in their masters' gardens, some little love of their own. Nor is the charm of horticulture alone felt by them. Who are, as a rule, young gardeners but the sons of gardeners? "Well, sir, he has a kind of took to the garden somehow," said a gardener to me of his son; "so I suppose he must follow old Adam's trade too."

Next, what has been the past year to us? Not, I fear, very cheering—cold, overmuch wet, and too little sun must be the characteristics of the year 1877. Flowers dank with unwholesome moisture, and their beautiful colours not drawn out by sunlight. Fruits "conspicuous by their absence," in the words of the veteran Earl Russell. Few amateurs' fruit trees laden—heavily laden—with purple, or golden, or green fruit. Plums not to be had, Pears few, Apples only plentiful in some places. Yet there is always a compensating system going on throughout nature. A fruitless season means also a resting year for a tree and a growing year for new and healthy wood; and thus I expect next autumn we shall have a fruitful season again. This is one of my expectations. Look at the Holly plant at Christmas, 1876—not a berry was to be had, the Holly tree had nowhere borne its fruit; but look into our churches this Christmas, and we see them all aglow with the best decoration of all—Holly branchlets brilliant with numberless berries. That next year will be a better year for gardening is from the law of compensation one of my fond, and I hope not ill-founded, expectations.

There has always been going on, sometimes faster sometimes slower, yet going on still, a progress in horticulture.

No. 1357.—VOL. LIX., OLD SERIES.

No. 875.—VOL. XXXIV., NEW SERIES.

Take the time of Charles II., when as it is well known the first Pine Apple was grown in England and presented to that monarch. Here was progress. But take another fruit of the same reign—the humble Gooseberry. Says dear old gossiping, yet observing, Pepys, “I came to Hatfield before twelve o'clock, and walked all alone to the Vineyard, which is now a very beautiful place again; and coming back I met with Mr. Looker, my Lord's gardener, who showed me the house, the chapel with brave pictures, and above all, the gardens, such as I never saw in all my life; nor such good flowers, nor such great Gooseberries, as big as nutmegs.” Fancy what our Lancashire Gooseberry-growers would think now, or for many years past, of Gooseberries no bigger than nutmegs! What progress in them! So of Apples. The very old varieties, such as the Golden Pippin, are nearly all small in size; the best modern sorts are not only fine in flavour but large in size. Progress again. So of Strawberries and other fruits. At the present time vegetables are very abundant, but not so in the olden days. Says Miss Meteyard in her “Sketch of the Art of Pottery in England,” “The quality and production of pottery during the Middle Ages and its relation to food cannot be overlooked. Vast joints of meat, or even whole animals, served without vegetables, required but a few huge dishes, a silver or pewter charger, a wooden tray, or a large clumsy slab of ill-baked earthenware. Vegetables were a rarity. Salads, sweet herbs, Peas, Beans, and Leeks, and one or more variety only of the Cabbage plant, was cultivated by the monks and in the gardens of the more enlightened portion of the nobility; but as ordinary articles of diet they were little used or known. Greens were indeed salted for winter use in 1289. Both Cabbages and Onions were imported from the Netherlands through the eastern ports, and the traffic continued to the close of the sixteenth century. But it was rather the hindrances to peaceful occupations than popular ignorance of the common vegetable products which made them scarce in the Middle Ages. The wars and civil feuds which occupied the nobility and took the agricultural population from their useful labours, the custom of feeding vast bodies of servile dependants in the baron's hall, were amongst the causes that hindered the progress of horticulture.” It always declined during war. In Henry VIII. and Elizabeth's time it revived, for there was not much war. “Compared with vegetables, fruit seems to have been tolerably abundant in this country during the Middle Ages. The Strawberry, the Raspberry, and others were indigenous, and when so large a part of the country was covered with wood, morasses, and heaths, the wild fruits must have flourished prodigiously, and furnished no inconsiderable portion of food to the towns near. The Romans brought the Vine, the Peach, the Chestnut, the Fig, the Pear, the Mulberry.” The monks cultivated and improved, but did not introduce. No fruit till the Tudor time formed part of a meal in confections and jellies. Thus we learn by comparing different periods what a progress has been in gardening products. If I entered upon the improvements in garden implements, and appliances, and arrangements I should have a fruitful and vast field of inquiry, and one of abundant interest; but of this I cannot find room to speak. Suffice it to say that in all these the great advance has been in the last quarter of a century.

I pass on next to flower shows. I grant at the outset that I should best like if these were attended by crowds, every one having an interested and intelligent love of the productions of a garden; but we must take things as they are, and all we must aim at is that the fruits, flowers, and vegetables shown go on improving. Suppose a flower show with only tents containing the exhibits and no other attractions, would they be filled? Oh, no. There would be a few—“fit audience, though few,” as some might say—a few most intelligent observers and delighted admirers of the things shown, but such shows would not and could not pay. Flower shows for gardeners only would never do. Take things, I say, as they are and make the best of them. I have been connected for seven years with a capital, most successful, and well-paying district show. To pay we must have numbers, but how get them? Why, hire the best band to be had and pay fifty guineas for it, as we do. That will bring in all the carriage owners of the district near—aye, and far too. The great people come in—fair ladies with exquisite toilets, gentlemen with exquisite equipages. Then the professional classes come, then the trade classes, and a vast number of the humbler classes come when, late in the afternoon, the entrance is reduced to sixpence.

Do all these people come to see the flowers and fruits? No,

only a certain percentage do; but then many more have their interest aroused, and here and there a taste is on that day caught and which will last. Let no one dream of inducing crowds to come and enjoy or even look at flowers. Crowds come together to see each other, sweethearts to meet each other, and others in search of sweethearts. Crowds come to see and be seen, and some to observe with a definite purpose. One man to note the horses. That little dress-maker with her sharp eyes has an eye to business, and is watching Lady So-and-so's dress and how the London fashions now are. Why even people do not all come to church from the highest motives; we must not expect them, therefore, to come to other places with eyes bent upon the particular object of the meeting. Have the best music, have also a tea tent as well as other usual refreshment tents. Have plenty of innocent drinks; beer heavily salted increases thirst, not allays it. Have amusements, but do not have fireworks; they keep people late, and then the public houses do a roaring trade. Once allow them and you injure deeply a good cause. A flower show, like a garden party, should be an innocent and early-hour recreation. I notice that the greatest improvement is in the cottagers' classes, and here is just what should be—a higher taste given, and labour becoming more and more skilled. But I counsel all managers of shows to avoid narrowness on the subject of musical and other attractions being combined with shows. Have a wide net if you want to catch many fish, remembering that only a few come to see the flowers, and fruit, and vegetables; but each year more and more will come, for Nature at her best is always attractive, and her spell will be laid upon here one and there another, and the one who came only to see others returns a devout lover of some plant that has gone home to his heart. Having noticed the improvements in the cottagers' exhibits, I would also remark that not seldom some one production of his garden is the cottager's pet, and it being so he grows it to great perfection, and often, and most properly, with an eye to sale. I have known the Raspberry so made a hobby of. Some of the best I have ever known came out of a cottager's garden, where they each year help to pay the rent. It is a tree-shaded garden, and the Raspberry flourishes under trees. Then, too, it is well to cultivate an eye for tree-beauty. Charles Kingsley had this. In one of his later works, speaking of the time of the Crimean war (1854), he thus writes of a successful artist:—“He paints no longer, save when he chooses, and has taken a little old house in one of those back lanes of Brompton, where islands of primeval nursery garden still remain undevoured by the advancing surges of brick-and-mortar deluge. There he lives, happy in a green lawn and windows opening thereon, in three Elms, a Cork, an Ilex, and a Mulberry, with a great standard Pear, for flower and foliage the queen of all suburban trees.” How that description makes us to see that lawn and its trees, and the big Pear tree best of all!

But I must bear in mind that this is not only the *Journal of Horticulture*, but it is also the *Home Farm, and Poultry, Pigeon, and Bee Chronicle*. The “Home Farm” is a capital addition, for this is essentially a journal of home pursuits, and the new department is sure to be as welcome as it is appropriate. As to poultry, I fear there has been no progress, save that the effect of high-class birds being so generally bred the ordinary poultry of the farm is much better than in former and far-back years. Whether poultry shows are about to dwindle and die out, save the great metropolitan ones, is a doubt. Everything is getting more central, which means more Londonified. Bristol Show gone; Birmingham only second-rate; county shows disappearing; great breeders advertising the sale of their stock and giving up. I hope a re-action may take place; whether it will remains to be seen. Pigeon shows do not seem to be hit as hard as poultry, and the London shows have been pre-eminently beautiful. Then the fancy pigeon is easily kept in a suburban garden; he wants little room, his home occupies but a few feet. In regard to pigeons I notice that homing pigeons are now being made useful in a very interesting manner by our Scotch neighbours, for, as appears by an account in another column, carrier pigeons are now employed with advantage in taking messages from boats engaged in the Scottish herring fisheries when no species of telegraph is available.

In conclusion I would give a few words of counsel to gardeners. It is notorious that hundreds of male servants, particularly those connected with indoor service, are now out of employment, the cheaper female servants taking their places these dear times. A great number, too, of coachmen and grooms find it a hard matter to get new masters, for carriages

and horses have to be given up. Gardeners are, happily, better situated, for gardens must be cultivated, but still I hear of the gardening staff being diminished. This is no time for making changes unless with great care and forethought. I counsel economy and content. If you are anything like comfortable try and stay where you are. "Rolling stones gather no moss," and "Three removes are as bad as a fire." Remember a wife's heart aches when she sees her chairs and tables put on a cart to be carried to another, perhaps inferior home, or, worse still, only to be stored at a friend's until a home be found, and I have known such cases. Gardeners, if you are single do as you like; but if you are married remember the poor wife's feelings and how miserable little children are when moved about or in small lodgings.

Lastly, a word to amateurs. I know your feelings well; your disappointments in a bad season, your rejoicings in a good one. What delight is given you as you stroll round your garden and things seem promising! I expect a good season this year for us, but if my expectations be not altogether fulfilled I will still hum Tennyson's lines—

*I'll take the showers as they fall,
I will not vex my bosom;
Enough, if at the end of all
A little garden blossom."

I counsel you to do the same. To each and all readers, on this the fourteenth time of writing the opening piece of the annual volume, I wish a truly

HAPPY NEW YEAR,

—WILTSHIRE RECTOR.

CAMELLIAS AND AZALEAS IN DECEMBER.

I BEG to thank your contributor "COUNTRYMAN" for his account of the plants he saw in bloom at "Veitch's," and a description of the midwinter flowers in such an unique establishment cannot fail to be generally interesting and instructive.

"COUNTRYMAN'S" remarks about the scarcity of flowers in December and of Azaleas and Camellias being late flowers, lead me to suggest that it is not the fault of these two charming plants if they are not made to open their blooms long before December, and at a time when they look so charming and last twice as long in flower as they do after the turn of the day and in spring. There is no difficulty whatever in commencing the blooming season of these two favourite flowers early in October; at least, such has been my experience. All that is necessary is a proper selection of sorts and the application of an increased temperature at the beginning of the year to cause them to make their growth and set their buds early. This they soon get into the habit of doing without much extra forcing. They are plants, more especially the Camellia, that, as most people know, do not bear hard forcing to bring them into flower in autumn, but they expand very freely in the autumn if they are caused to mature their growth and set their buds early in summer.

I have had Camellias in bloom by the first week of October as a regular thing, and the same plants have continued blooming till February, individual blooms lasting more than double the time, either on the plants or when cut, than they do in spring. This takes place without any fire heat, except just keeping the temperature about 45° at night in cold weather. The varieties that come the most easily into this habit I find to be just the two best Camellias for general purposes—namely, *Alba plena* and *Imbricata*. To these may be added Chandler's *Elegans* and *Jubilee*. Doubtless there are others that I have not tried that are equally useful for this purpose.

Of Azaleas I find President Van den Hecke came into bloom in October without much more heat than has been referred to in the case of Camellias. The same may be said of Charles Leriens, a most beautiful semidouble rosy crimson flower; A. Borsig is also easily flowered thus early, and being a beautiful semidouble white is most acceptable for cutting and wiring for bouquets; as also is *Souvenir du Prince Albert*, a most lively rosy peach broadly margined with white. Besides these an excellent variety, *Iveryana*, can easily be had in full beauty in November; indeed, I have frequently had this variety in full flower in October. Then there are *Vittata* and its varieties, and one or two varieties of *Punctulata*, and *Roi de Leopold*, an excellent deep rosy crimson flower, all of which are available for the "dull time."

Referring to Camellias and to some remarks on the propriety or otherwise of not shading them when making their growth, I

may allude to a collection of healthy Camellias and exceedingly well bloomed that I had charge of for several seasons in the large conservatory at Wrotham Park somewhere about thirty years ago. These were planted out in a curvilinear-roofed structure of iron and glass, and consequently very light. The Camellias in question were never shaded, but had the full force of the sun the whole spring and summer. The foliage was remarkable for its size, dark green colour, and substance. I have never seen such floriferous Camellias since; and one plant of *Reticulata*, generally a straggling grower, was perhaps the most remarkable of all for its compact growth, immense leaves, and still more immense blooms borne in great profusion. The plant was 14 feet high, and formed a beautiful pyramid. These plants were, though never shaded, abundantly supplied with water, of which they took almost unlimited supplies in the growing season. There is this to be said of these plants and their exposure to so much sun, that they did not make their wood and foliage early, and consequently it was made under strong light, and was therefore all the better able to stand the brightness of the height of summer, apparently with advantage.

It is scarcely necessary to remark that Camellias to flower in winter and that grow freely in February would suffer if not shaded when the bright sunshine of May overtook them.—D. THOMSON, *Drumlanrig Gardens*.

GOOD RESOLUTIONS FOR THE NEW YEAR.

WITH the opening year stirring thoughts come crowding upon the minds of everyone whose life has a purpose and plan. Another span of time lays before us in no vague or indistinct manner. Clearly defined are its boundaries—months, days, weeks, hours, minutes are all placed clearly before us in calendars of all sorts; and while we look at their duration well indeed will it be for us if we realise the full value of an entire year and resolve to turn it to better account than any of the years that are gone. In the calm quiet last hours of the old year we were able to trace to its source the cause of many a failure, aye, and of many a success too, and to resolve that the outcome of past experience and the knowledge gained as much by failures, perhaps more than by success, should lead to better results in future. Such, at least, should be the end and aim of our efforts, and so will we qualify our resolutions, for it is not given to mortals to command success, but it is their undoubted duty to put forth every effort to ensure it.

Such reasoning applies to all classes—all callings, but it is especially intended here to bear upon gardeners and their duties, and it is hoped that it will lead to many an useful train of thought, many a good resolution, many an earnest effort; nor shall I be far wrong if I imagine the cogitations of those good men and true for whom I write to take some such tone as this:—"I am resolved to effect some improvement in every department. Advantage shall be taken of favourable weather to push on shrubbery and lawn work; to eradicate blemishes, such as overcrowding, uneven surfaces, faulty curves, bad walks, ragged or worn-out verges or edgings; to re-arrange and make trim climbing plants, to renovate old or sickly Roses with fresh soil and manure, and to impart and maintain a trim neat aspect to every part of the garden. In the kitchen garden the soil shall have my especial care and close attention, knowing as I do that upon its condition successful cropping very much depends. Not an inch of it shall remain undug after a crop is cleared from it, but it shall be broken-up and left to the wholesome sweetening influence of wind, frost, rain and sun till it is required for another crop. Solid manure shall be applied with no sparing hand when the ground is dug, and sewage or any liquid manure shall be poured upon it when crops are in full growth and the young roots are ready to feed upon such rich juicy fare, to the immense benefit of every part of the growth above ground. I will give particular attention to sowing seeds well and at the right time, to thinning and transplanting seedlings, and to maintain a full supply and constant succession of each sort of vegetable in its season. It matters not to me if the family is likely to be absent from home; my duty is to have an ample store of vegetables ready at all times, and I will do so as well as I can.

"In the fruit garden I will strive to give full attention to pruning and training, to keep branches well apart for the admittance of light and air, to have the branches furnished with plenty of strong spurs, and to make every tree a model of its kind as well as a prolific bearer of fine fruit. Any weakly trees shall be lifted and replanted in fresh rich whole-

some soil. Those which show traces of canker shall be root-pruned and have a rich surface-dressing to attract the roots from the cold subsoil, which is the probable cause of the evil. In the vineries I will strive for great cleanliness in the houses as well as in the Vines. I will give the borders rich surface-dressings of manure to attract and feed the roots; I will practise neither very close pruning nor pinching of the branches, and will neither have crowded growth nor overcropping. In the Peach houses I will endeavour to secure strong growth, foliage that is perfectly clean and healthy, a border of rich sound loam, and a free circulation of air, with the exclusion of cold winds in spring. In the Pine houses I hope to keep the plants quite clean, to secure an ample supply of bottom heat, and to have due care taken to avoid root-scorching or mischievous watering. All plants in pots shall have neither dirty foliage nor starved roots, one or the other of these evils being usually the cause of subsequent disease and failure. I will keep no worthless or sickly plants in the plant houses, and will confine my efforts to the culture of a selection of really useful plants rather than waste my time and strength upon a collection of curiosities.

"Such labour power as is placed at my disposal shall be turned to the best account, and in order to do this I will attend closely to its supervision myself, knowing as I do that—

'He that by the plough would thrive,
Himself must either hold or drive.'

While claiming the privilege of receiving and paying occasional visits to my brother gardeners for useful discussion and social intercourse, I will take especial care that its exercise shall not interfere with the due performance of my duties or cause the slightest annoyance to my employers; and if I succeed, as I hope to do, in making the garden more beautiful and the crops more abundant and fine than my neighbours, I will not forget that it is for the especial pleasure and benefit of those whom I serve that this is done, and not for the public."

If such thoughts are only followed by prompt action and persevering efforts they will surely lead to success. Let us not, therefore, fail to remember that resolution means firmness of purpose, fixed determination, constancy.—E. LUCKHURST.

JOTTINGS ABOUT ROSES.

UNDER this head you published in your issue of November 29th some remarks which, for the sake of the Rose-growing community of the district from where they emanate, can scarcely be expected to pass unchallenged. Your correspondent commences by descanting on the folly of travelling over the old and beaten path, and thereupon puts us in possession of a piece of information that has been before us for the hundredth time—that is, that Rose elections for exhibitions are misleading to people who are inclined to grow only what may be termed good garden Roses. Here your correspondent's originality is at fault; but he may, I think, lay claim to having propounded a new theory when he informs that Marie Baumann and Alfred Colomb are not desirable Roses for the purpose just named. For the sake of intending purchasers in the district of Chester-le-Street, and for the information of your correspondent, I may state that at three or four places within a mile or so of Red Rose Vineries I have seen these two Roses growing and blooming as well as any Rose could be desired to do. Further, I might say that Alfred Colomb, instead of having his smiles obscured or assuming a careworn or stunted appearance, the reverse is the case: his smiles beam forth beautifully and often, and his growths are strong and healthy. These desirable features in Alfred are not to be attained by one season's trial of it. A gentleman here who grows Roses well told me some years ago that he did not care for Alfred Colomb for the same reasons that your correspondent gives; but since then he has grown it on its own roots, and it is now a very great favourite with him.

As to your correspondent's selected dozen I would like to make a few remarks. Certainly Baronne de Rothschild is a superb Rose and generally does well here; so does Charles Lefebvre, which I consider a most satisfactory Rose and one that ought to be included in every order for a dozen. Your correspondent attaches the condition to these two Roses—viz., that they must be in thriving condition, a remark which holds good in the case of every Rose in cultivation, and one might fairly say in the case of every flower. The Duke of Edinburgh is certainly a brilliant flower, but I think in ordering a dozen I should not include it. Général Jacqueminot is a most desir-

able Rose and ought to be grown in every garden where Roses are found, but most certainly not clad in the same coloured raiment that our North Durham hunt sports; if so, I would imagine that our nurserymen were imposing upon us in a degree not to be tolerated. Next in order Mr. Witherspoon places Gloire de Dijon; certainly it comes nearer to a perpetual-blooming Rose than any I am acquainted with, and its hardiness and vigorous habit make it a welcome addition to any collection where Roses are not grown for exhibition; but Mr. W. and I must agree to differ when he says it is unsurpassed for buds. Surely he has never seen that gem of Roses, in bud, Narcisse. What can be more exquisite than a bud of this splendid Tea, so delicate, so beautiful? John Hopper is next in order, and a rare Rose he is, growing well and blooming till December. Louis Van Houtte is, says your correspondent, a fine dark Rose: surely he might have passed some higher eulogium on such a superb Rose. I have taken a particular interest in this Rose, and from its robust habit and free-blooming qualities I have been highly satisfied with it, and should most certainly vote it in the first dozen either for exhibition or otherwise. Mdle. Eugénie Verdier, Marquise de Castellane, and Prince Camille de Rohan follow next: the latter is advocated as a button-hole Rose, and is voted to be the most satisfactory dark Rose we have. I would prefer Pierre Notting, much as I like the Prince. Princess Beatrice or Princess Louise are both Roses, in my opinion, which would bring disappointment to the beginner who does not exhibit. Sénateur Vaisse brings the dozen of Mr. Witherspoon's selection to an end, and he could most certainly not have ended with a better; it is a splendid autumnal Rose, and I have no doubt your correspondent has succeeded well with it.

In selecting a dozen good garden Roses why does your correspondent omit such Roses as Souvenir de la Malmaison and Mrs. Bosanquet? What matters it to the average cottager or amateur whether he grows Hybrid Perpetual, China, or Bourbon Roses, so long as he derives pleasure from them and can always, comparatively speaking, cut a flower? Mr. Witherspoon says that we have not a distinct striped Rose of the York-and-Lancaster stamp; what says he of the Beauty of Glazenwood, the new Hybrid Tea, and Cillet Parfait, and several other Gallica Roses?

For the information of Rose-growers and intending Rose-growers in the neighbourhood of Chester-le-Street I may state that the best collections of Roses in this district are to be seen at Mr. Marshall's, Old Gardens, Lambton Park; the gardens, Lumley Castle; and at South Hill; and all these collections are under the charge of old and practical rosarians, who, although not claiming to have grown Roses at the age of five or seven years, are well known to possess a thorough knowledge of this branch of their profession, and, furthermore, they are every one able and willing to give the best of information to beginners.

Although I am not a personal acquaintance of Mr. Witherspoon I am inclined to think, despite his assertion of having tended to Roses forty years ago, that his experience is exceeded by his enthusiasm; therefore I think that he ought to take particular care that his jottings are not calculated to mislead our friends and neighbours. Nothing is so disappointing to beginners, and nothing so much calculated to damp their ardour, as to procure goods that are altogether unsuitable to their wants or to their situations; therefore I would advise all your readers in this district to see the Roses grown at the abovenamed places and judge for themselves, or hear from the managers what to procure or what to avoid. I hope that Mr. Witherspoon will accept my remarks in the spirit in which they are given—that is, a friendly one.—T. CRAWFORD, Lambton.

MRS. PINCE'S BLACK MUSCAT GRAPE.

HAVING grown the above variety of Grape some few years, and also having been tolerably successful in its cultivation, I venture to give my experience for the benefit of intending planters. When it was sent out I obtained two Vines, which were planted with others, one being the Muscat Champion and two Lady Downe's. I found the Muscat Champion would not do with the others, as it ripened much earlier, so I rooted it out and put a Mrs. Pince in its place. Then I had left two late sorts, Lady Downe's I found very apt to scald, smaller in berry, and more stony than Mrs. Pince, neither did it keep so well with me, nor was it to be compared in flavour; so I rooted out Lady Downe's and planted two more Mrs. Pince, and I never regretted it, as the latter fully came up to my expectations, with only one drawback—grow it how I would, with heat or without it,

I never detected more than a very slight flavour of Muscat. This is also the opinion of other growers whom I know. It is a fine-flavoured, good-keeping Grape, and also very large in the bunch. I grew one bunch this year nearly 2 feet long, so that I was obliged to cut it much shorter to get it into my show box. The Vine is prolific and a tolerably good setter, but as a rule it does not colour well.

This year I was most successful as regards the colouring, the whole house from top to bottom having over a hundred bunches of fruit of a good black colour, as Dr. Hogg, who saw them, can testify. Well, the weather continued dark and cloudy, and in a fortnight, to my surprise, the colour began to disappear, and do what I would the berries nearly all became a foxy reddish purple; besides which, for the first time I found them difficult to keep. I cut several bunches and placed the stems in bottles, and have some still—all these retained their colour—and I sent some away this week that were quite black. With regard to those I cut for exhibition, owing to the uncertainty of the arrival of the trains on the South-Eastern Railway, I was obliged to cut them the day before the show. I did so, and put them in my box. When I opened it next day at the Royal Horticultural Society's Gardens at South Kensington I was most disagreeably surprised to find my fruit had nearly lost their colour, and what is most curious is that the Muscat Champion, boxed at the same time, was none the worse. So I take it that the loss of colour is peculiar to Mrs. Pince; still, for all this it is a good Grape, and in my opinion far before Lady Downe's in flavour. I have not found it do well with heat, and it has a better flavour without it when it is ripening its fruit. However, I have now done with it, having rooted it out, as I intend to grow early Grapes in the house it has occupied.

As most people are abusing the Duke of Buccleuch, and as I think I was one of the first to write about it, having tasted it at the Kelso Show, and then (and now) thinking very highly of it, I shall try it under two conditions of growth; one will be in a ground viney. I grew the Golden Champion fairly well in one, also the Muscat Champion. Everyone was against that Grape, and I have grown it some years in a hothouse, in a cold house, and a ground viney, and I consider it is one of the best Grapes I ever tasted, and worthy of all praise.

Venn's Muscat is the strongest grower I have, and has done well, the fruit colouring readily. I should like to hear about the Golden Queen from anyone who has grown it. I have seen it truly grand shown at South Kensington by Mr. Pearson. Has anyone succeeded as well with it?—HARRISON WEIR.

LANDSCAPE GARDENING.

ON December 13th "Notes on Landscape Gardening" were read at the Darlington Gardeners' Institute by Mr. Bowker, superintendent of cemeteries in Darlington, and from them the following is extracted.

In laying out gentlemen's grounds the situation of the house and the style and arrangement of the gardens must necessarily depend upon the extent and formation of the ground, its accessibility, surroundings, and the requirements of the proprietor. When any person wishes to make the most of a place it is best to consult a good landscape gardener and an architect together on the ground before the house is erected or even designed. On large estates, where there is plenty of scope, the best position for the mansion is on a well-elevated part of a southern slope. The general arrangement might then be as follows:—Front—terrace, walks, parterre, fountains, and park. One side—lawn, roserie, rockery, and walks leading to the park, orchard, and kitchen garden. Other side—conservatory, lawn planted with ornamental trees, and walks leading out to the grounds and to the park. Rear—kitchen garden, stables, and all places intended for work. All these should be hidden by planting. The carriage road and entrance will depend upon the means of access, but they should be hidden sufficiently to give privacy. Parks should always be separated from the gardens by a low ornamental wall or balustrade above a sunk fence, or by a bright evergreen hedge. Nothing looks more unsatisfactory than a well-kept lawn adjoining a park and only divided by railing. Water, when properly managed, always adds to the beauty of a place, whether it be in the form of a lake or a river. A lake should appear to take its form from the ground. The indentations should be bold and not too frequent. The margin is best varied by some parts being rugged, and others smooth grassy slopes. Islands should appear natural. The plants must be such as usually grow near water; a few planted to project over the water look well.

Great care and judgment should be exercised in choosing and arranging trees. It is advisable to notice those which thrive well in the locality, and select accordingly. Ornamental and flowering trees and shrubs are the most suitable to plant near the mansion. The plantations should contain both evergreen and deciduous trees. The evergreens give an appearance of warmth during winter, and the brightness and changing colour of the foliage of the deciduous trees give a pleasing variety in summer. Large and robust trees are the best for a park. Planting should not be done too regularly, either in groups or in single specimens. A few irregular plantations with detached trees scattered about are most natural. Spaces should be left for views. Openness makes a place look cheerful. Want of room often compels people to plant as they can; but when planting is done to hide something objectionable the purpose should not be too apparent. Suburban villas are mostly placed with their fronts to the public roads, but by carefully mounding and planting comparative seclusion may generally be secured. Many, however, are so arranged that the front of the house, the stables, and kitchen garden are exposed to public view.

Before commencing to lay out grounds of any extent a good working plan should be made, so that the work may proceed in a straightforward manner. It is very unsatisfactory to a proprietor to see his grounds cut up and then altered and altered until they get into something like a garden. Much valuable material is wasted in this way. The work of laying-out and planting may commence before the building when the ground is extensive enough. The roads may be roughly formed, and the soil from them used for the borders or other places where required. Some planting may also be done. In levelling for lawns the surface soil should be removed, the ground made even, and then re-covered with the soil previously taken off. If this is not attended to some places will be bare or brown, while others will grow luxuriant herbage. Also, when preparing beds or borders, soil should be used suitable for the plants intended to be put in. When planting, we should consider what the plants will be in the future. Trees intended to be permanent ought to be planted first, and the intervals filled up with common kinds. These latter will help to furnish the ground, shelter the better plants, and may be thinned out as necessary. A landscape gardener ought always to consider the future. The man who thinks of the present only does not deserve to be trusted with a place of importance.

THE APPLE-BLOOMING SEASON.

In the spring and early summer of the year now past I took a few notes of the time some of the Apple trees came into bloom, intending to observe the effect on the crop. Perhaps they may be interesting to some of your readers at the present time.

The blossoming period was unusually late, and the weather, notwithstanding the delay, by no means genial. Cold nights and boisterous winds were too frequent to suit the setting of the fruit. The following are the memoranda:—

May 7th. Apple trees coming into bloom; a few blossoms expanded on some pyramid trees of Lord Suffield, espalier trees of Keswick Codlin, and standard trees of Transparent Codlin, Gravenstein, and Alfriston. The first-mentioned the most forward.

May 16th. Trees mentioned above in full bloom.

May 19th. In full bloom espaliers Northern Spy and Worcester Pearmain; also standards of Sturmer Pippin. At the same date nearly in full bloom were standards of Cornish Gillyflower, Golden Harvey, King of the Pippins, Pearson's Plate, Red Juneating; and espaliers of Hawthornden. At this date not a single bloom expanded on Lemon Pippin.

May 27th. First bloom expanded on standard Lemon Pippin.

June 2nd. Lemon Pippin nearly in full bloom. The following low standards in full bloom: Acklam Russet and Winter Hawthornden. Lemon Pippin was not quite in full bloom till 9th of June.

In looking over the trees after the blooming period was over the prospect of a crop on the Lord Suffield appeared very middling, but the final result was better than expected. There was a moderate crop, but the fineness in size partly made up for the smallness of number. There was a good crop on the Keswick Codlins and Hawthornden. There was a good crop on Transparent Codlin and Alfriston—very useful Apples, neither of which I should like to be without. The crop on Gravenstein was middling; I do not consider it a very good cropper. Those in full bloom May 19th were a fair crop; but

the largest crop of all was on the tree which was last in bloom—the Lemon Pippin. The tree was crowded on every branch like ropes of Onions, and had to be tied up in every direction with tarred cord and supported by two or three props. It is not a large tree, but has a great many branches, and I gathered more than a sack of fruit, which is most useful, as they are keeping better than most of the other Apples.

In observing the Apple bloom last year there was one circumstance which struck me as unusual, and that was that the Hawthornden was about ten days later than the Keswick Codlin. Unless I have been mistaken, there is generally only a difference of two or three days. I must observe this next blooming-time.

I think the produce to be obtained in certain parts of the country from fruit trees may be much increased by selecting varieties suited to the soil and climate. Some appear to be much more hardy than others, and some are well suited for espaliers; the latter mode of training is the one I should follow in a large garden where fruit is required every year. I should select a quarter of an acre of ground in a square, and on all sides of the square plant a hedge of *Arbor-Vitæ*, Hornbeam, or some other shrub which could be kept as a neat screen to keep off the cold winds, and if an acre were taken I should have four squares. The Apples I should plant would be Lord Suffield, Hawthornden, Keswick Codlin, &c.; these well managed would not fail more than once in ten years in a suitable soil unless the situation was very exposed, and in this way you would scarcely ever be without Apples. Cornish Gilliflower is a good Apple, but too delicate for this part of the country. I have a standard tree of it, but there was only a solitary Apple this year, and Gravenstein was not much better. Whether a market gardener planted these two Apples, or such as King of the Pippins and Pearson's Plate, would make all the difference between failure and success.—AMATEUR, *Cirencester*.

ARRANGEMENT AND CULTURE OF ROSES.

DURING the past season I have been into a number of gardens both large and small, and one thing strikes me, and that is the muddling way in which Roses are grown. Roses are pleasing wherever placed, but I should like to see my fellow amateurs give more attention to the Rose garden or bed. Why not have something artistic instead of a hundred plants here and a hundred there all over the place?

The following is a diagram of my Rose bed placed in a wing of my garden. *a*, Gravel path; *B*, centre bed; *c*, horseshoe ring.

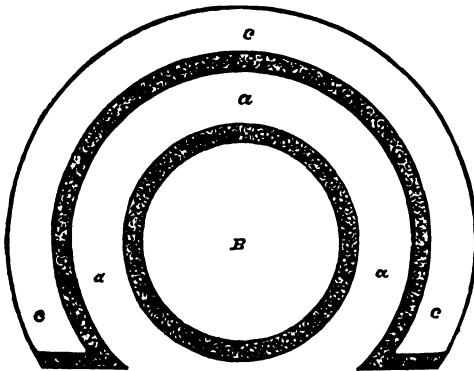


Fig. 1.

The centre bed is large enough to hold three hundred Roses planted 4 feet apart. I have standards in the middle, then dwarf standards, and the outer rings dwarfs. All round the horseshoe I have standards, and dwarfs in front, also planted 4 feet apart: this takes about another three hundred. The effect of this arrangement in June is very striking. The horseshoe ring, according to my idea, is better than if continued all round, as by standing in front we obtain a grand view of the whole. This plan can be enlarged or diminished according to fancy or space. It has the advantage of being ornamental and practical. Manure to any amount can be given, and Roses grown either for exhibition or decoration.

A word or two about soils. For heavy clay there is nothing so good as plenty of unslacked lime dug-in two months before

planting; it sweetens the soil and keeps it open and friable, and enables sour wet ground to assimilate manure. Double-trench the ground, and mix the lime with stable manure; let it lie for two or three weeks, then dig well together, and the result will be as good a soil for Roses as can be desired.

For light soils cow manure is the best; it retains moisture, and, if given liberally, after a season or two makes the ground sticky and nourishing. In fact, for all soils except clay there is nothing like cow manure for Roses; it heightens the colour, darkens and brightens the foliage, and keeps the ground cool.

Lastly, plant well away from large trees. Use the syringe very freely. Never water, for it induces mildew, especially after a hot day (I am open to correction on this point). Do not prune too closely; thin out unsparingly, taking great care to cut out all dead and unhealthy wood; let the air well into the plant. Do all the work possible yourself, and learn from experience; and although the first season or two may turn out utter failures, in the end a prize at the National will recompense all heartburnings.—AN OLD ROSE-GROWER.

EARLY-FLOWERING CHRYSANTHEMUMS.

YOUR correspondent, Mr. F. Freeman, gives a list of thirty early-flowering Chrysanthemums, and states that he wishes to increase his collection. I think that there are several more Pompons that he might add to his list and also some large-flowering varieties, and I recommend him to add the following—Mrs. G. Rundle, George Glenn, Golden Beverley, White Beverley, and also the three *Cedo Nullis* and *Mdlle. Marthé*. If he would like Japanese varieties I would recommend him to have Elaine and James Salter.—A GROWER OF FORTY VARIETIES.

THE APPLE TREE IN THE PLEASURE GROUNDS.

THE Apple tree is not grown to such an extent in this country as it ought to be, nor as it might be, for the price of Apples at the present time is a proof that the demand is greater than the supply. Thousands of bushels are sent to this country from the Continent and from America, and the quantity and quality yearly increase. That beautiful kind called the Newtown Pippin, which is now to be seen in almost every fruiterer's shop window, is imported from America.

Of all hardy fruits the Apple is the most easily cultivated, and we may conclude from that that the climate of England is agreeable to its constitution, and there is no reason why this useful fruit, which is in so much request in every household, should not be more extensively grown.

I should like to see Apples in more general use as ornamental trees, and I cannot understand why they are not more frequently planted in places of moderate or even limited extent, such as in the gardens of suburban and villa residences, by intermixing them with shrubs, for it may be said with truth that there are few objects more beautiful than an Apple tree in full bloom. It would add greatly to the charms of the gardens and residences during the spring and early summer months, and afford in autumn a supply of valuable fruits in places where there is generally a want of it. There is scarcely an article of vegetable food more widely useful and more universally esteemed; and no wonder, for an Apple pie or tart are amongst the most wholesome food that can be placed on the table, and for dessert ripe Apples are equally enjoyable and healthful.

In one respect the gardens of the ancients surpassed our own. They did not think a beautiful-blossomed tree unfit for the pleasure grounds or flower garden merely because it produced rich juicy fruit. Now-a-days it rarely happens that Apple trees are planted in a position where their beauty can be appreciated and enjoyed, as would be the case in a villa garden, and those who would like to have their shrubberies made additionally attractive by the gradations of the different shades of colour should plant Apple trees for producing beautiful blossom in spring and rich golden fruit in autumn.

The following varieties I have proved excellent for dessert and culinary purposes, and they yield a supply over a long period of the year. Those marked with an asterisk are suitable for both kitchen and dessert use:—

DESSERT.—*Blenheim Pippin, October-March; *Boston Russet, December-April; Cockle Pippin, January-April; Cornish Gilliflower, November-May; *Cox's Orange Pippin, October-February; *Golden Reinette, November-March; Franklin's Golden Pippin, November-March; Kerry Pippin, September-October; Margil, November-March; Old Nonpareil,

January-May; *Ribston Pippin, November-March; *Reinette du Canada, November-April.

KITCHEN.—Alfriston, November-April; Beauty of Kent, November-April; Golden Noble, October-January; Gravenstein, October-December; Hawthornden, October-January; Keswick Codlin, September-November; Nonesuch, September-October; New Hawthornden, November-January; Northern Greening, December-March; Waltham Abbey Seedling, September-January; Winter Greening, November-May; Bedfordshire Foundling, December-April.—NATHAN COLE.

SERVICEABLE GRAPES.

WE have now a very extensive array of Grapes. Nearly one and a half hundred varieties or kinds are described in Dr. Hogg's "Fruit Manual," and the lists of nurserymen are very much more prolific in Grapes than they were a few years ago. New (or alleged new) varieties have made their appearance, and some, though backed up by first-class certificates, have proved of questionable merit, it being doubtful if any new varieties are equal to Black Hamburg and Muscat of Alexandria for general purposes. I have no hesitation in saying that for a majority of growers they are the Grapes *par excellence*. Go where we may we find a preponderance of Black Hamburg; it is the most prominent of black Grapes. The Muscat of Alexandria is grown by everyone commanding heat; it, next to the Black Hamburg, is the most extensively cultivated Grape. Not the least that can be said in the favour of those Grapes is that they succeed with everyone, if able to grow a Grape at all. It may be urged that the Muscat of Alexandria is a bad setter, but compare it in that respect with some of the newer kinds grown in the same house and we shall find that there is not nearly so bad a setting nor so many stoneless berries in the Muscat of Alexandria as the others, Mrs. Pince and Black Muscat being great sinners in that respect.

But much as I like Black Hamburg and Muscat of Alexandria they cannot be depended upon for a supply of Grapes from December to April. During some seasons they keep very well up to Christmas, but not always, and I do not think it judicious to rely upon them after November; therefore we are under the necessity of a third, and that, as I have found it, is Lady Downe's. I have seen fruit of this Grape hanging quite fresh in April, while it is well known that Grapes keep quite as well cut with a portion of shoot inserted in water in a dry room as on the Vines; indeed, very much better than in a leaky vinery. With the three kinds—viz., Black Hamburg, Muscat of Alexandria, and Lady Downe's—we need have no fear of not maintaining a supply of Grapes the year round, and it may be accomplished by a house of Black Hamburg, to ripen in late April or early May; a second of Muscat of Alexandria, to ripen in June or early July, having a few Black Hamburg in the same house, which will be ripe a month earlier than the Muscats; and a third house of Muscat of Alexandria and Lady Downe's, planted alternately, to ripen in September, the Muscat being good until near Christmas, sometimes later, when Lady Downe's will come in and continue until May.

Another such trio is not to be found in Grapes. Why have more kinds? Variety is wanted. Many know not what it means. A vinery planted with as many Vines of different kinds as the house can accommodate instead of but one, or at most two kinds, means, as I have invariably seen and experienced, some success with no little failure. My advice to beginners is—Do not plant a dozen sorts of Grapes if one will serve the purpose intended, unless it be specially proposed by the proprietor. Quantity and quality are combined in the sorts mentioned, and they generally afford satisfaction alike to grower and consumer.

Variety being requested, and I confess to admitting its charms, let it be sought in kinds that are likely to afford satisfactory results, inasmuch as there is no need to admit doubtful kinds, we having so many really good tried Grapes awaiting acceptance. I may note a few for different times of the year, and shall endeavour to name as few as possible consistent with the object in view.

Early vinery—Mill Hill Hamburg, Black Hamburg, and Black Muscat (Muscat Hamburg) worked on Black Hamburg. Of whites—White Frontignan, Golden Hamburg, Buckland Sweetwater, and Foster's Seedling—representatives of the Hamburg, Muscat, Frontignan, Sweetwater, and Muscadine Grapes. A house of those kinds may be forced to afford Grapes in April onward, they being equally select for ripening in June.

Second vinery or mid-season—Black Hamburg, Black Prince, Frankenthal, Madresfield Court, Muscat Troveren, and Foster's Seedling. Muscat of Alexandria is at this season indispensable. It is best grown in a house or division by itself, having a good black companion in Mrs. Pince and Black Muscat of Alexandria.

Late vinery—Alicante, Lady Downe's, Gros Colman, West's St. Peter's, Bowood Muscat, White Tokay, Mrs. Pince, Gros Guillaume, and Trebbiano. Calabrian Raisin and Syrian may be added if more whites are desired. A house of Gros Colman, Trebbiano, Gros Guillaume, and Syrian would produce a sensation, but the great desideratum is a suitable black companion for Muscat of Alexandria, there being none at all worthy of the position except Black Hamburg, they unfortunately in the same house not ripening together; also a white companion is equally wanted for Lady Downe's.—A. G. P.

VEGETABLE CULTURE.

CHAP. I.—INTRODUCTION.

CERTAINLY no apology and very few words are needed to introduce a subject the importance of which is so apparent as vegetable culture. As articles of wholesome diet good vegetables are more necessary than any other kind of food to the human being. Their cultivation is universally practised, but in many instances their successful cultivation is very imperfectly understood, and, what is equally to be regretted, there are many kinds of vegetables excellent for food that few excepting qualified gardeners know either how to grow properly or how to use, although requirements in both respects may be extremely simple. Taking this into consideration, and also knowing how eagerly information concerning successful vegetable culture is sought after, I have been induced to begin a series of communications on this subject which will simply, fully, and practically detail the cultivation of every description of vegetable capable of being converted into profitable food. At the same time the best mode of cooking will be briefly appended when it is deemed necessary to do so.

VEGETABLE GARDEN FORMATION.

This is a matter which must be provided for as well as circumstances will permit. As it is impossible to describe every kind of vegetable garden which might be made, I will just give a few details of an ordinary one which will suit general requirements, and which may be applied to a piece of ground of any extent. The best form for a vegetable garden is square; but at the same time when this cannot be secured long strips or even triangular pieces of ground answer the purpose very well. Situation is of greater importance than shape. It is never desirable to have a vegetable garden on a high exposed place nor yet in a very low position, but the latter is to be preferred to the former, because many vegetable crops are extremely easily injured by exposure to wind and drought, both of which they are subjected to when elevated.

For obvious reasons the vegetable garden should always be convenient to the house, but as invisible from it as possible. Where no plantation or elevated ground conceals it, let it always be at the back and never at the front of the house. A plantation shelter from the north is a great advantage, but the exposure to the south, east, and west should be free and open, excepting where the situation is greatly exposed to cutting east or west winds, when a screen of trees a short distance from the garden will be found very beneficial. The aspect, too, must be taken into consideration; for although the ground may have the desired exposure and shelter, if the aspect is not correspondingly good the other advantages lose their value. The ground should slope as near south-east as possible, or it may be level, but it must not slope to the north. Its extent must be regulated by the requirements of those to be supplied with vegetables; but any garden above one acre in extent should be surrounded by a red brick wall 9 inches thick and from 10 to 12 feet high. Many gardens are surrounded by walls much lower than this, but they are neither the best nor most profitable for fruit-tree culture. Large gardens are generally surrounded by walls of an uniform height, but in small gardens the south wall may be a few feet lower than the others. The basement of the wall should consist of stone up to the ground level, and the bricks which follow this must be substantially and neatly built in, and the coping should be of dressed freestone placed so as to project about 3 inches on each side.

Small gardens must never be too much divided by walks. A border, however, should run round the whole length of the

wall, terminating in a walk. The width of this walk, and the border as well, should depend on the extent of the garden. In an enclosure of one acre the walks should not be more than 6 feet and the border 12 feet. In a garden six or eight acres in extent both walks and borders may be double that width. Apart from the walk just mentioned it is necessary to have divisional walks. In small gardens a walk should run through from the centre of the north wall to the centre of the south wall, and the same from east to west. This will leave four quarters of vegetable ground. Larger gardens may have two walks running from north to south in the place of one in the centre. Where walks cross and meet for ornament there may be a circle formed, and for convenience there may be a round stone tank built to hold water, a good supply of which must be brought into the garden where it does not exist.

It is hardly necessary to point out what kind of soil should be secured in a vegetable garden, as this is included with other circumstances, about many of which there is little choice. A good mellow loam from 18 inches to 2 feet deep, and not too retentive, is more suitable than any other kind of soil. In preparing this for cultivation dig all the good soil out of the walks and spread it over the vegetable-growing patches. Then trench these to the depth of 2½ feet; gather all the stones from the soil, and those not required to fill up the bottom of the walks with should be laid at the bottom of the trench to act as drainage where this does not naturally occur. In very wet soils and in low situations drains 3 feet deep should be laid in every 12 yards to fall into a main out at the lowest part of the garden. In vegetable gardens stone or tile edgings are the most desirable, as they give no harbour to slugs or other pests. The glass structures should consist of one or two good forcing pits and a number of large and small frames, which may be placed in any position not hidden from the sun. A Mushroom house should also form an indispensable part of every good vegetable garden. Many little details which may be found necessary are omitted here, but all the most important points are included and may be applied with a little addition or reduction according to circumstances.

THE POTATO.

This vegetable claims our first consideration, and the first attention of everyone who has a kitchen garden. It has little or nothing to do with future cultivation to write a long history of the introduction of this and other vegetables into this country, consequently few remarks will be devoted to this head; but too much credit cannot be bestowed on those who have improved the originals of many vegetables into such palatable and wholesome food. The Potato was introduced from Virginia to England by Sir Walter Raleigh in 1586. Since then its cultivation gradually extended until it became a staple article of food, and it has for years been regarded as second in importance to few crops in the country. The dreadful disease, the effects of which, if not the cause, are so well known, has for years proved very disastrous to the crops; and although much has been written and many things invented to stay its progress or stamp it out altogether, the past season has proved in a very undeniable manner that every line that has been written, and every article that has been invented to prevent it, have completely failed. Let anyone look at the Potato crops generally of 1877, and then prove this to be incorrect. That the disease may be modified by soil and situation I grant, but that it will be influenced by the weather is where everyone must feel their weakness of even modifying it. Passing to cultural observations I will first refer to

Forcing the Potato.—The success attending this mode of culture should induce its more general adoption. It is, however, only in few gardens where the Potato can be forced very early and in sufficient quantity to give a large supply for any length of time; but a considerable quantity may be had from a very small space under glass, and a few even so produced assist to complete an all-the-year-round supply, which is more desired in the Potato than any other vegetable, and is easier secured than in most others, as the Potato keeps so well for such a length of time. Where profit and pleasure are aimed at few crops pay better for marketing than early Potatoes. We always manage to have a few dishes from pots early in January, but our chief supply begins from the middle of April onwards. To have them ready at that time they must be planted during the first or second week in January, and hot dung or leaves, or both mixed together, must be placed in a pit or frame to the depth of 3 feet, then above this must be spread 1 foot of soil. When this has been done

the tubers may be planted 10 inches between the rows and 6 inches between the sets. After planting the glass lights are put on, but any kind of board shutter will do until the shoots are above the soil. Air must be admitted on fine days, and coverings must be employed during the time of hard frost. Water is seldom needed until the growth is considerably advanced, as much moisture comes from the fermenting material at first. When the sets are planted 6 inches below the surface they require no earthing-up. About the beginning of April when the weather is mild the lights are taken off altogether. Myatt's Prolific Ashleaf and Rivers's Royal Ashleaf are two of the best varieties for forcing, as they do not produce many stems but a great crop at the root, and they are excellent in flavour.—A KITCHEN GARDENER.

ZINC LABELS FOR ROSES.

THIS is a question I should like to see discussed in your Journal. It is now some years since I was led to discard zinc labels and copper wire, the shoots dying on which they were fastened, although in every case I was careful not to injure the bark by fastening too tight. I have since used wooden pegs about 15 inches long and about 2 inches wide driven into the ground, the names of the Roses being written upon white paint while the paint was wet. This seems to answer very well, but has several drawbacks, chief of which is that the label so soon looks dirty, particularly if you mulch and the season is wet.—J. BROWN.

VINE BORDERS.

I WAS very pleased to see at page 495 that the notes on Vines which I have sent you from time to time have merited the attention of such a good gardener as Mr. Taylor. As a rule I think his brief practical remarks are highly worthy of being adopted, but I cannot agree with either the instructions, constructions, or corrections which he has submitted on Vine borders. If inside Vine borders have any advantage at all, which I am very doubtful about, it is only in the case of early Vines, and then the benefit is only in assisting the Vines into growth, and not in securing their permanent well-being. It was proved to my satisfaction long previous to October 11th that inside Vine borders were inferior to outside borders. I am not the only one, I know, who have their minds fully made up on this point, and they have had opportunities of observing and gaining experience that any ordinary Grape-grower would not acquire in a lifetime.

Mr. Taylor thinks that to keep the border so dry as to cause the leaves to shrivel is the "description of Vines under decidedly bad management." In some instances it might be, but not in all; and that this is the treatment to which six inside borders out of every ten are subjected to I have had pretty good chances of knowing. Mr. Taylor cites his own Vines as examples of what may be done by inside borders, but Vines under his management cannot be taken as representing the ordinary and general standard of Vine-growing in this country. But what would Mr. Taylor say to a gardener, with knowledge of Vine-growing corresponding with his own, being compelled to keep the inside border "nearly dust dry?" Apart from growing the fruit there is the keeping of it to take into consideration, and Grapes cannot be preserved on the Vines throughout the winter with the surface of the border saturated and continually charging the atmosphere with moisture.

Respecting the Vine-border composts I thought the different quantities of the various ingredients would be clearly understood when I stated that the body of the compost should consist of loam, with one-third of decayed cowdung, &c., added. No person could rightly understand that by adding one-third to a whole it was applying it in equal parts. But to make matters plain, take three cartloads of loam, add one of cowdung, and another of wood ashes, and a bushel of smashed bones to every cartload of the whole. This is the mixture which I recommended, which I still adhere to, and in which I have grown as fine Vines as any I ever remember seeing. Just a word on Mr. Taylor's recommended mixture for growing Vines in. Soil naturally suitable for growing Vines will grow them for a time without the introduction of any artificial ingredients; but suitable or unsuitable, I am quite at a loss to understand what benefit Vines would ever derive from one bushel of bones mixed in fifteen cartloads of loam. The pieces of bone that would go to each barrowload of loam at this rate might be counted on the fingers of one hand.

It is well known that about towns, where there are so many vineries, and in many country districts as well, proper Vine-growing soil is most difficult to be had, and anything approaching the right material can only be secured by adding liberal quantities of other ingredients. Mr. Taylor, I fear, does not make enough of allowance for this, nor for the many who are deficient in other acquirements which he admittedly possesses.—A KITCHEN GARDENER.

THE ECONOMIC USES OF FLOWERS.—No. 1.

OF the various parts of plants used industrially the flower would seem to be that of least importance, and yet this enters more than would be at first supposed into commerce, and many flowers are of the greatest importance to the perfumer and dyer. Not to speak of the trade in cut flowers and flowering plants, and the extensive commerce carried on in these in great cities, and passing over a considerable branch of trade in what are known here as "Everlasting Flowers," and "Immortelles" on the Continent, an acre of which plants will yield 2 or 3 tons weight of tufts of flowers, realising from 12s. to 16s. per cwt. A few details may be given serving to illustrate the commercial value and various uses of flowers.

Among the most important products in a commercial point of view are Safflower, Saffron, Rose leaves, Lavender, Pyrethrum, Orange blossoms, Cassia flowers, Violets, Jasmine, Tuberose, and Camomile flowers.

Safflower, from the deep orange petals of the *Carthamus tinctorius*, is obtained in parts of southern Europe, India, and China, the latter being considered the best. The imports of Safflower into this country vary considerably, having reached as much as 32,000 cwt. in some years, but in the last two years our supplies have dropped to about 3000 cwt. The great centre for the use of this dye stuff appears to be Lyons, where it is employed to dye silks and satins.

We also import from 3000 to 5000 lbs. of extract of Safflower, worth from £1000 to £1700. The exports of Safflower from India exceed in value £100,000, and from China they are about the same amount, to say nothing of the local consumption in Asia and the produce in southern Europe.

Saffron is obtained from many countries, but the preparation is chiefly confined to France and Spain. The total value of the saffron produced annually is estimated to amount to one million sterling. About 30,000 flowers are required to produce 2 lbs. of fresh pistils, which when dried are reduced to one-fifth of that weight. Pereira says it takes nine flowers to make up a grain of marketable saffron, so that it would require no less than 4320 flowers to yield 1 oz. Some, again, assert that to produce 1 lb. of dry saffron 107,520 flowers are necessary, while others put the quantity as high as 203,920 flowers. According to Dumesnil, in the "Académie des Sciences," 7000 to 8000 flowers are required for yielding 17½ ozs. of fresh saffron, and this weight, as already stated, is reduced one-fifth by drying.

Our imports of saffron are, compared with its use on the Continent, not very large. They were:—

	lbs.	£
In 1867	9401	17,963
" 1868	26,048	50,198
" 1869	22,152	36,596
" 1870	43,980	95,890

The imports into this country have not been published since then. The largest quantity comes from Egypt (nearly half), then follow the supplies of Spain and France, varying in quantity according to crop. Judging by prices the Spanish would appear to be held in less estimation than formerly.

Very extensive Rose farms exist at Shiraz in Cashmere, at Ghazepore in India, at Adrianople in European Turkey, at Broussa and Usiak in Asiatic Turkey, and about Cairo and other parts of Egypt. It is said to have been the Princess Nour-Djihan who discovered, at the commencement of the sixteenth century, the essence of Roses in the empire of the Mogul, and received for this a necklace worth £3000. In 1611 the Sultan Ahmoud I. sprinkled the pavement and the interior of the new Kasbah with jets of Rose water. It is also said that Saladin, after the peace of Jerusalem in 1187, sprinkled the Mosque of Omar with Rose water from Damascus. The odoriferous Rose was formerly cultivated in the oasis of Fayoum, Middle Egypt, but the culture has been almost abandoned. The essence used locally there is now chiefly obtained from the ordinary Roses of the country, collected in spring in the gardens.

Experience has shown that for every ounce of attar of Roses 3000 lbs. of Rose leaves are required.

The yearly production of the districts in the province of Kezanlik is on an average 3500 lbs. Some years, however, the bushes are exceptionally prolific. Thus in 1866, 6000 lbs. were produced, but in 1872 only 1700 lbs. could be obtained. The war now raging in this district has, however, made sad havoc with the Rose gardens, and for a time destroyed the produce. The pure attar, at 30s. per ounce, yielded an income of £84,000 yearly to Roumania. Of Rose leaves we imported—

	lbs.	£
In 1867	8775	476
" 1868	5323	267
" 1869	6427	321
" 1870	5392	420

Since that year there has been no official return published.

The leaves are usually imported salted. 1 lb. of salt well mixed with 1 bushel of Roses (6 lbs.) converts them into a magma (pickle). As their primitive odour is preserved they can be distilled at any time, and produce as good Rose water as fresh Roses. The Provence Rose will yield in the second and third year from 1 to 200 bushels of Roses per acre. The Damask Rose is that chiefly cultivated for medicinal purposes. Just before the bud is about to open it is plucked, and the bottom of the bud is cut off. These cuttings are termed "Rose heels;" the top is preserved, either to make infusion of Roses or conserve of Roses.

M. Piver some time since published the following statistics of the flowers employed in perfumery annually produced in the department of the Alpes Maritimes:—

	Kilos.		Kilos.
Roses	904	Tuberose	18,200
Orange flowers	61,218	Cassia or Acacia	35
Jasmine	62,500	Violets	86

The Lavender fields in the London district cover about 500 acres, and the yield of essential oil varies from 15 to 30 lbs. weight per acre, according to the season or age of the plants.

The little bouquets of Violets which are generally sold in the streets of London are the produce of many acres of land at Mitcham and its neighbourhood. On one farm there are 16 acres of land under Violet culture. The two varieties of this flower principally grown are the Russian and the Giant. The first-named is darker in colour, the latter is the most fragrant. There are large Violet farms in the south of France, of more than 100 acres, near Nice.

Several species of Pyrethrum are grown in parts of Europe—*P. carneum*, *roseum*, &c.—for their flowers, which are very obnoxious to insects, and are sold when powdered under the name of Persian or Caucasian insect powder. In 1870 these flowers were exported from Rugosa to the value of £1104. That from the Caucasus is the best. The amount of this powder consumed annually in Russia is said to be about 500 tons. A quantity of these plants grown upon 18 square rods is estimated to furnish nearly 1 cwt. of powder, which is best preserved in closed vessels of glass. As generally sold the powder is very much adulterated and worthless, often mixed with Sumach. A good insect powder ought to stupefy a fly in one minute if four grains are sprinkled on it in a vial, and death should ensue in two or three minutes. Some of the commercial insect powders, however, require fifteen to thirty minutes to kill a fly.—P. L. SIMMONDS (in the *Chemist and Druggist*).

REVIEW OF NEW BOOK.

The Gardeners' Assistant, by ROBERT THOMPSON. Revised and Extended by THOMAS MOORE, F.L.S. London: Blackie and Sons, Paternoster Buildings.

A CURSORY perusal of this book enabled us to pronounce it "a sound and a splendid volume." It is sound because it is a record of the experience of a man of practical eminence, also because it contains chapters by other successful cultivators, such as Messrs. Douglas, Baines, McLellan, Burbidge, Gower, Baker, and others. It is also handsome in appearance by its general high finish, the excellence of the paper, the clearness of type, and the superiority of the coloured illustrations and numerous wood engravings. Yet while we have nothing but praise for its general appearance, we doubt the wisdom of so greatly enlarging it and rendering it an expensive work beyond the means of many whom the author intended to benefit. To thousands the volume will now be regarded as a luxury to be desired rather than an "assistant" easy to be obtained. We do not suggest that the additional matter is unnecessary, but,

on the contrary, we esteem much of it indispensable; our objection is to the retention of much that has become obsolete. We should have preferred that the work of excision had been much more thorough in order to have prevented disappointment, which cannot fail to be experienced by purchasers, who must now pay a very high price for much very commonplace, even useless matter. In a standard volume of such importance as this is nothing should be retained except what is really useful or instructive. In the matter of Peas varieties are retained and minutely described which are seldom if ever cultivated now, but which are extracted from seedsmen's lists. For example: at page 240 we find the Early Charlton Pea. There is no such variety now. It has been exploded many years ago, and nothing is left of it but the name. Early Charlton now simply means any common white Pea which anyone may go into Mark Lane on a market day and buy a hundred quarters of. No seedsman ever grows Early Charltons specially for the supply of his customers. The "Gardeners' Assistant," so far as the lists of vegetables are concerned, could not fail to bewilder those seeking for guidance rather than give them the aid they require, unless they were already as well taught as the teacher.

The lists and descriptions of stove and greenhouse plants are complete and excellent, but the selections given of varieties of such ever-changing plants as *Petunias*, *Pentstemons*, *Gloxinias*, *Zonal Pelargoniums*, &c., while being reliable now will in a year or two be superseded, and considering the cost of the volume, varieties so ephemeral cannot be said to occupy such valuable space profitably. Carpet bedding is introduced and coloured diagrams given, but we note in the list of green plants that the most popular and extensively planted of all, *Mentha Pulegium gibraltarium*, is omitted; perhaps, however, this plant may "go out of fashion" before another edition of the work is called for, still for the time being the omission renders the subject strikingly imperfect.

By way of rendering the volume more acceptable in reducing its bulk, and consequently its price, it is worthy of consideration as to whether the tedious and lengthy detailed calendar of operations could not be with advantage greatly condensed, or, indeed, entirely dispensed with. Similar but better, because more modern and serviceable, compilations are scattered broadcast by enterprising seedsmen. Cheap annuals are circulated by thousands which give fuller information of the same kind, and every section of the gardening press gives weekly instructions for the prosecution of every operation of gardening, which render an old calendar in a bulky volume superfluous. Since the calendar to which we refer was written great changes have taken place in the literature of gardening, and we think we know sufficient of the practical mind of the late Mr. Thompson to warrant us in supposing that he would have concurred, under the present circumstances, in the inadvisability of increasing the bulk and cost of a volume by the retention of fifty pages of matter, which we doubt not a majority of readers will consider might be very well omitted. Of the practical nature of the greater portion of the book we cannot speak too highly, and it is because we desire such sound and useful teaching be placed in the hands of everyone engaged in gardening operations that we have suggested a means of placing it within the reach of many who cannot become possessed of it in its present form.

We regret that a work so beautiful and costly should be marred by any blemish. At page 171 we find little Pixie Cabbage given as a distinct variety which it is, but in the same column it is given as a synonym of Atkins' Matchless. At page 249 the late Mr. Alfred Smee is spoken of as "Dr." Smee. Salwey Peach is called Salwey. No notice is taken of fruits of such excellence as Hale's Early Peach and Lord Napier Nectarine. The common name of Kentish Cob among Nuts is sought for in vain. The Fig Gros de Draguignan is spelt Draguignan. Oullins, which is the name of a place, is given as that of a person. Bavay is spelt with a. In the cut representing the inflorescence of the Walnut on page 483 there are no references to the description given on 482, leaving the reader without an "assistant" to tell him which are the male and which the female flowers. There are many more instances of careless editing, these being noticed at a mere glance through the volume; and we are amused at the pedantic way in which the old name of "hardy trees and shrubs" is converted into "hardy arboreal and shrubby plants."

It would have been as well if the source whence so many of the woodcuts were taken had been acknowledged. It is hardly fair to M. Du Breuil and M. Alphand that their beautiful

illustrations should have been so freely used without even the mention of their names, while the services of everybody who appears to have done however little to the work are "acknowledged with thankfulness."

BRUNSVIGIAS AND THEIR CULTURE.

ONE of the tribes of charming plants that secure our esteem and are worthy of extensive cultivation are the *Brunsvigias*. They are half-hardy bulbous plants, that can be grown under very favourable circumstances in the open border, but they must have all care to succeed with them out of doors. It is useless attempting to cultivate them outside in many places, as they are impatient of wet when in a matured state. They are said to be named after the noble house of Brunswick, and are natives of the Cape of Good Hope. Some of these plants are to be met with in cultivation here and there, but it is by no means of common occurrence. To cultivate them successfully in our variable climate they are best grown under glass in a warm greenhouse or cool stove. If we could have a hardy strain of these beautiful flowers I doubt not but they would become very popular.

To succeed with them in pots bulbs for single specimens should be potted 3 or 4 inches below the surface of the soil, consisting of good sandy loam and peat with a little well-decomposed manure, with knobs of charcoal and grit mixed together, taking care that the pots are efficiently drained. They should be potted moderately firm in the soil, and be placed in a light house and watered carefully. When fairly in growth they require a good supply of water until the flower scapes appear, and when they have repaid us by their magnificent blooms water should be gradually withheld until the growth has ripened-off. They can then be stored away in a warm dry place until they are again required for potting, as a period of rest is essential to success. Should it be desirable to have a display of these lovely flowers, four, five, or more bulbs may be placed in large pots. When so grown they produce a magnificent effect.

They are increased chiefly by offsets; with impregnation they may be increased by seed. In potting the offsets should be removed, and if required to increase the stock they may be potted into small pots and treated as the older bulbs. Those most commonly met with in cultivation are *Brunsvigia grandiflora*, *B. marginata*, *B. striata*, *B. multiflora*, and *B. ciliaris*. Others might be named which are worthy of the notice of the cultivators of those beautiful flowers that adorn our homes and the structures we love so well.—H.

NATIONAL AURICULA, CARNATION, AND PICOTEE SOCIETIES.

SOUTHERN SECTION.

At a general meeting of the subscribers and executives of these Societies, held on the 4th ult. in the Council Room of the Royal Horticultural Society, South Kensington, Thomas Moore, Esq., in the chair, audited balance sheets and lists of subscribers in each case were presented, read, and ordered to be printed for distribution, and resolutions as undernoted unanimously adopted—viz:—

1. That inasmuch as the causes which called the Southern Sections into existence remain in undiminished force, the Presidents, Vice-Presidents, Committees, and Hon. Secretary be requested to continue their functions.
2. That the subscribers be gratefully thanked for the handsome support accorded to the Committees, congratulated on the beautiful displays resulting therefrom on April 34th and July 18th respectively, and respectfully urged to continue their support for the following season.
3. That a copy of these resolutions be forwarded to each subscriber, with a form to be returned to the Hon. Secretary, stating the amount of subscription each subscriber will be pleased to accord to the Society.

In accordance with the latter resolution copies of the balance sheet and list of subscribers have been duly sent out, and on behalf of the Committee I shall gratefully esteem an early return of the form sent therewith, so that the Committee may proceed to the arrangement of the schedule of prizes for the Auricula Show fixed to be held in the Crystal Palace on Thursday, April 25th.—E. S. DODWELL, 11, Chatham Terrace, Larkhall Rise, Clapham, S.W.

HOLME LACY.—No. 2.

THE SEAT OF SIR HENRY SCUDAMORE STANHOPE, BART.

HAVING adverted to the beautiful park at Holme Lacy, the dressed grounds next demand attention. These are tolerably extensive, but they are chiefly noteworthy for their diversified and extremely picturesque character. In many, perhaps in most, gardens of an ornamental nature, some particular feature predominates. Fine terrace walks, broad smooth lawns, noble trees, evergreen masses, brilliant groups of bedding plants or

collections of hardy border flowers, prevail and constitute the primary feature. This is not so at Holme Lacy. Each of the features named is not only represented but is sufficiently prominent to attract notice, while the whole are balanced and blended so well as to form a picture singularly striking and complete.

An idea of the stateliness of the walks has been given. Their dimensions—north terrace walk 700 feet long and 45 feet wide, and a south walk 800 feet long by 30 feet wide—suggest that some open lawns and other accessories are required to afford relief to the great area of gravel. They are provided; and so far from the gravel appearing obtrusive the size of the walks is scarcely noticeable.

The entrance drive to the mansion is from the north through a pair of elaborate wrought-iron gates, whereon the armorial bearings of the family are displayed. The park is here treeless, and merges into a lawn of two acres similarly treeless: this is the north or archery lawn. The east lawn is also destitute of bed or tree, and extends to the park-like valley of the Wye, from which rises a range of tree-clad hills towering boldly and melting away in the misty distance. Nature was in a happy mood when this splendid eastern view was formed. The walks are not an inch too wide nor too long for such imposing surroundings. To have planted those lawns with trees would have detracted from the beauty of the distant landscape, which is here worthily and rightly regarded as the chief feature of attraction, while to have dotted them with flower beds would have been a still greater violation of the tenets of good taste. How often do we see the natural beauties and resources of a place so divided and diluted that not one imposing feature remains, instead of first ascertaining what that feature is and seeking to give it prominence by rendering the surroundings subservient to it.

The view from the south terrace is quite different. Immediately in front of the mansion is the Dutch garden with its broad sunken terraced glade as a central point, descending between walls of Yews to the valley and water scene. Parallel with this glade, and about 40 yards distant on either side of it, are two broad gravel walks also leading to the valley. The spaces between these walks and glade are lawns on which are some fine deciduous trees clustered with Mistletoe and towering from such masses of Yews as are seldom seen. The lawn between and under these Yews is kept in excellent order, which adds greatly to the general effect. On the open spaces next the walks are some choice specimen Conifers and clumps of the stately and elegant Grass *Arundo* *conspicua*, the towering silvery plumes of which are rendered additionally and charmingly conspicuous by the dense greenery of the Yews, which are here the chief feature; these, growing free and unchecked, possess a grandeur of their own, which is enhanced by a very few flowering shrubs irregularly interspersed and the trees and Grasses mentioned. Two trees here, however, demand special mention. One of them is common enough of its kind—the Pinaster, but a specimen of such imposing dimensions is rarely seen. It has been planted on a square elevated platform of lawn, and is a noble timber tree commanding the attention of every passer-by. The other tree is still more rare; it is a remarkable specimen of the North American *Planera* *Richardi*, which is probably unequalled in England. The splendid trunk, smooth and round, widens and divides into more than twenty nearly upright branches, each of great size, which form a magnificent oval-shaped head fully 80 feet high and of proportionate width. It is a marvellous specimen of a beautiful and rare tree. If a finer example is to be seen in Britain I should be glad to know where it is growing.

Such is the view from the eastern end of the south terrace walk. Let us now traverse the walk westward, pausing—as the stranger is compelled to pause—to inspect and endeavour to comprehend the details of a picture that is altogether unique. When a certain Doctor, who has “something to do” with the Journal, returned from a visit to Holme Lacy, he was so impressed with the remarkable beauty of this terrace that “nothing would do” but that I must see it too. “Go,” he said, “it will do you good.” I went, therefore, “by the Doctor’s orders;” but, much as I enjoyed the visit, I almost wish in the interests of my readers that I had remained at home. I will endeavour, however, to describe the scene of nature and art which are here so effectively blended. On the right of the walk is a narrow lawn, having a background of shrubs. Near the front of the lawn are single specimens of variegated Hollies, choice Cupressuses and *Retinosporas*. In the background are

with deciduous trees, including the deciduous Cypress, *Taxodium* *distichum*, a fine Tulip Tree unfortunately nearly destroyed by the violent September gales, and a beautiful specimen of the American Liquidamber or Sweet Gum Tree, of which the autumnal tints are so glowing and so rich. In the centre of this lawn is an orangery, the south wall of which is covered with Myrtles, Magnolias, and *Maréchal* *Niel* and the “Old Yellow Tea” Roses. The Rose last mentioned is most valuable, for it grows freely and blooms profusely and continuously. It is one of the earliest, latest, and most admired Roses at Holme Lacy. On the left is the topiary work, not represented by fantastic shapes, but huge masses of closely shaven Yew, 12 to 15 feet high, half as much in diameter, and two hundred years old, smooth yet not formal, but irregular in height and outline, with lancet window-like openings into the flower garden, and quadrangular-like recesses, bold and severe. At the end, or rather what appears to be the end, is apparently a huge bank of Yews growing across the walk; and rising from the Yews, towering in lofty altitude, is a group of Scotch Firs, remarkable by their height, colour, and beauty. Their red trunks are almost destitute of branches, and when illumined by the rays of the morning sun produce an effect which it is doubtful if a “doctor,” much more a patient, could adequately describe. I have seen, perhaps, thousands of acres of Scotch Firs—Firs in England and in Scotland, and a glimpse of the Black Forest of the Continent, but I have never seen any equal to the red-stemmed specimens at Holme Lacy. This bold terminating feature is, however, not impenetrable, for as we approach nearer we find a porch-like opening, and we pass between the trunks of the Firs to an irregular avenue of forest trees and an undergrowth of Laurels. Parallel with this bowery glade is a real avenue—formal and correct—of Elms, as straight in the trunks as the pillars of a vast cathedral nave, and with Nature’s graceful arches formed high above amidst a delicate tracery of leafy sprays. At the base of these trees is a flowery and not closely shaven lawn—flowery because studded with bulbs and other spring flowers, such as Violets and Primroses, which Lady Scudamore Stanhope delights to plant in every available position where they will become naturalised. It is pleasing to note that in a garden where high-class modern flower gardening is so well carried out, and where stately border perennials are assiduously cultivated, that the lowly simplicities of nature are not overlooked, but are turned to account and made to beautify, as no other flowers can do, the sides of woodland walks and shaded glades and groves.

Having followed the terrace walk and avenue into which it merges, we reach the west end of the ornamental grounds, and find another point of vantage, from which the view is obtained as represented in the accompanying engraving (fig. 2). The standpoint here is singularly favourable for inspecting the grounds, which are in a measure overlooked, for reaching entirely across the garden is an elevated plateau of smooth lawn about 20 feet wide and perhaps 100 yards long. This artificially-raised lawn is some 5 or 6 feet above the general ground level, and constitutes an enjoyable and commanding promenade. There is no record as to the “authorship” of this elevated plateau, nor of course the object of it. Possibly it may have been designed for the purpose it serves so well of enabling the beauties of the garden and the country beyond being inspected so conveniently and satisfactorily. On the extreme left of the view is shown the lofty Scotch Firs which have been referred to as terminating the west end of the south terrace walk. Next comes the flower garden, which is 160 yards in length by about 40 in breadth, surrounded by a gravel walk and bounded by dense Yew hedges. This garden has been formed by the present baronet. The lawn contains as many flower beds as can conveniently be formed, and in the summer would be almost overpowering by the blaze of beauty were it not for the sobering frame of Yew which surrounds the floral picture. The correct arrangement of the colours in this garden is a subject which receives the special attention of Sir Henry and Lady Scudamore Stanhope, who devote to it much thought and long deliberation. The result is that the massing system is displayed in the best manner of which it is capable; and as a compliment to the owners and artists the late Mr. J. R. Pearson named after them two of his best bedding Geraniums—namely, Sir Henry Scudamore Stanhope, which is a finer crimson than even General Outram, and Lady Scudamore Stanhope, which is one of the brightest and most effective of the orange-tinted varieties. These and others of the best Chilwell Geraniums, with older sorts of proved

excellence, are largely employed, together with beds of *Petunias*, *Ageratums*, *Heliotropes*, *Calceolarias*, and other plants of that nature, associated with *Lobelias*, *Iresines*, *Mesembryanthemums*, *Centaureas*, and *Cerastium Biebersteini* as edging plants. The plant last named is seldom seen now, but is one of the most effective of low-growing silvery-foliaged plants. The beauty of this flower garden is considerably enhanced by a series of small square beds, each about 2 feet in diameter, which are arranged about 4 or 5 yards apart near the margin of the lawn next the side walks. These squares were planted with a central plant of *Perilla nankinensis* in a groundwork of *Nierembergia gracilis*, and a centre of *Centaurea gymnocarpa* in a groundwork of blue *Lobelia* alternately. This arrangement was strikingly effective, and suggested how much can be done in a plain manner and with simple material when good taste is exercised. Round beds by the sides of the long straight walks and near those closely and squarely-clipped hedges of Yew would have been out of character, while the appropriate-

ness of the squares was so manifest as to command approbation at the first glance. These little marginal beds were happily conceived and admirably planted, and imparted a decided finish to a splendid flower garden—a garden which both by its extent, formation, and its close masses of well-arranged colour reminded me of the display in the renowned garden at Dirleton Castle (Archerfield), only at Archerfield the beds are on gravel, at Holme Lacy they are on grass.

From the modern to the ancient system of flower gardening is but a few steps. The herbaceous flower borders at Holme Lacy are shown in the centre of the engraving, and constitute one of the finest features of these attractive grounds. The borders by the sides of the Yew hedges are about 5 feet wide, and are longer than the modern flower garden; and the promenade, which is 9 feet wide, is of smooth and admirably-kept lawn. These are not newly made borders formed to display an old system of decoration which is now becoming popular and deservedly so, but they have been herbaceous borders from

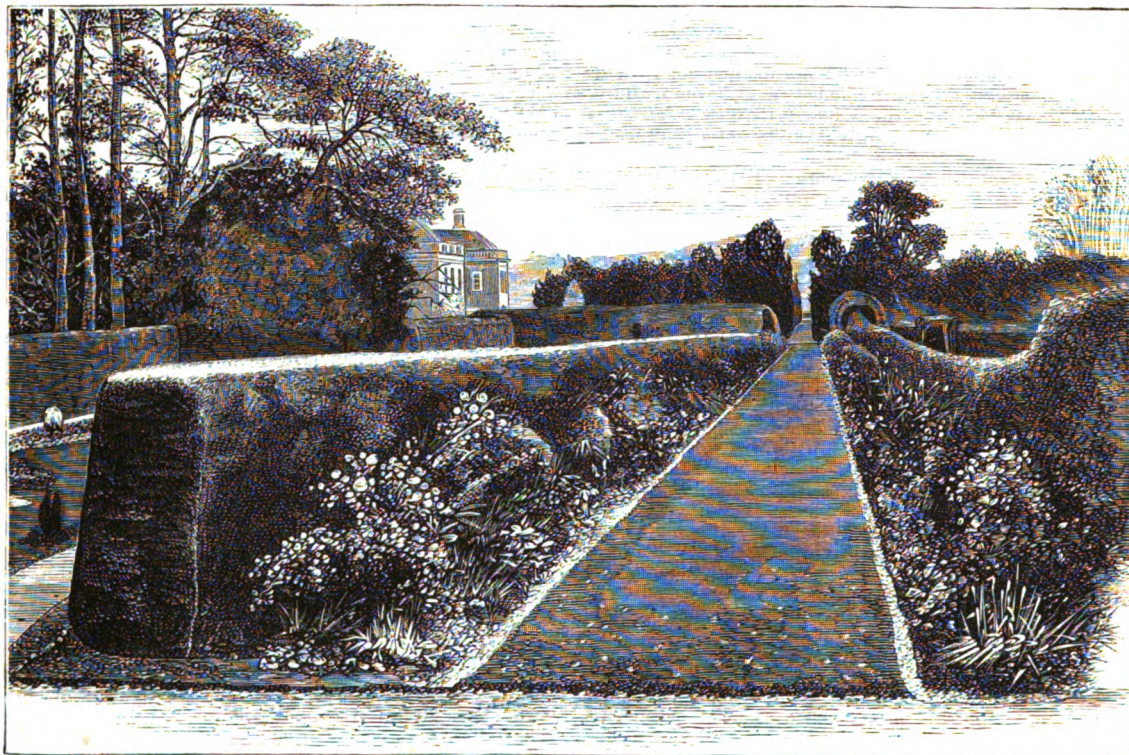


Fig. 2.—HOLME LACY—VIEW IN THE GROUNDS.

time immemorial. Beautiful indeed must be these borders in the spring long before the modern garden "over the hedge" can display a single flower save the marginal line of Crocuses at the foot of the Yew fence; and the borders are attractive, too, after the Geraniums have succumbed to the autumn rains and frosts. But it is in the spring and early summer that they are the most admired. They contain early-flowering bulbs by thousands, and these associated with *Myosotides*, *Daisies*, *Aubrietias*, *Arabises*, and other dwarf spring flowers produce an effect that can only be afforded by such flowers when growing in semi-wild masses. Of taller-growing plants which prolong the display are fine clumps of the beautiful and stately white Lily, *Lilium candidum*, which appear to great advantage with the dense dark background of Yew. Colour is imparted by *Tritomas*, *Pentstemons*, *Gladioluses* and *Phloxes*, and grace by *Pampas* and *Ribbon Grasses* and *Fuchsias*. Numerous other border flowers assist in the general display during the summer; and in the autumn the *Asters* (*Michaelmas Daisies*) impart cheerfulness by their pleasing masses of varied colour. This "Green Walk" as it is called, with its well-filled flower borders bounded by Yew hedges, with the vista formed by an opening through the Yews of the Dutch or terraced garden above alluded to, onwards across the deer park and over the Wye, terminating with the Caplar Mill and an old Roman

encampment visible thereon, is one of the most beautiful features of Holme Lacy.

Near the termination of the herbaceous border on the right an opening through the Yew hedges conducts to the roseroy—a beautiful spot. On the lawn are beds of dwarf Roses and standards singly planted in the turf. Clematises on wire trellises are pillars of beauty, and *Arundo conspicua* again displays its silvery elegance. On the lawn, too, a "simplicity" is worthy of mention. It was simply a wire trellis 5 or 6 feet high with an umbrella-shaped head covered with the Canary Plant (*Tropæolum canariense*), the golden sprays of which depending like a fringe had an unique and striking effect. This beautiful lawn ornament can be easily formed in any sheltered garden. In addition to the flowers in this secluded enclosure are specimen Hollies and other shrubs relieved by a few weeping Birches. The surrounding hedges are about 4 feet high and wide, except that on the north side through which the entrances are, which is 12 to 15 feet high and 8 or 9 feet wide. Such is the roseroy: it comes on the visitor as a charming surprise, which cannot fail being enjoyed by all who inspect it during its summer beauty.

On the south of the "Green Walk" is the nursery for the raising of young trees and shrubs, and beyond this, next the park, is the "old pot orchard." The term "pot" signifies

that the fruit is grown for dessert and culinary purposes, and not for cider and perry. The cider orchard, the wonderful "travelling" Pear tree, and the "cordon wall," to which I intended alluding this week, are "crowded out," and notice of them must necessarily be deferred to a future issue.—J. WRIGHT.

HYMENANTHERA CRASSIFOLIA.

IN general appearance this low-growing hardy evergreen shrub is not unlike a *Cotoneaster*. It has the same sub-procumbent growth as *C. microphylla*, the same small closely-arranged leaves, the same profusion of berries; yet it is very distinct both botanically and ornamentally from the familiar evergreen

alluded to. *Hymenanthera crassifolia* is conspicuous by its pearly-white berries, which are freely produced during the autumn and winter months. They are of the same size as Mistletoe berries, but are more elongated and are chiefly borne at the base of the branchlets. This shrub is suitable for planting near the sides of walks, or preferably on mounds, rockwork, or the sides of steep declivities, from whence it can be viewed from below, and its numerous and curious berries be seen to the best advantage; generally speaking, however, positions that are suitable for *Cotoneasters* are suitable also to this distinct white-berried shrub, which is a fine companion to the *Cotoneasters*. *Hymenanthera crassifolia* is a native of New Zealand. It is quite hardy, grows freely, and flowers and



Fig 3.—HYMENANTHERA CRASSIFOLIA.

fruits profusely in the Coombe Wood Nursery of Messrs. James Veitch & Sons. It is one of the most novel and chastely ornamental of low-growing evergreen shrubs.

ROSE DEVONIENSIS.—In the Rose election lists this Rose is stated to be raised by Mr. Curtis. A letter from Messrs. Lucombe, Pince, & Co. tells me that it was raised or introduced by Mr. Pince. Evidently the climbing variety is the most appreciated, being more robust and larger, but this is only a vigorous sport from the old variety.—JOSEPH HINTON, Warminster.

[The old *Devoniensis*, as may be seen from a letter from Mr. Conning on page 387, November 15th, 1877, was raised by George Foster, Esq., from whom it passed into the hands of Messrs. Lucombe, Pince, & Co.—EDS.]

NOTES AND GLEANINGS.

THE COUNCIL OF THE ROYAL HORTICULTURAL SOCIETY submit to Fellows and Members a statement, from which it

appears that the end of 1876 found the Fellows as a body dissatisfied with their privileges and divided into hostile sections, their resignations alarmingly numerous, and new candidates for the Fellowship few; the Council unable to satisfy the conflicting wishes of the contending parties, obliged to maintain South Kensington Gardens, and without funds in possession or prospect sufficient to carry on the Society with credit to the end of the year 1877. In this situation all parties saw the necessity for mutual concessions, and the Society ceased to be torn by internal strife. The privileges claimed by Fellows were granted to them and added to, and a new body of Annual Members created. Resignations ceased, and candidates for admission presented themselves in numbers which, though absolutely large, are still far short of those required to place the Society on a safe footing for the future. The Council desire to render the South Kensington Gardens attractive to London Fellows and Members, and with this object will provide a band and give promenades every Saturday while the attendance justifies the outlay. These promenades will commence on Saturday January 19th, will during the winter last from 3 to 5 P.M., and be held in the conservatory, which will

be warmed, and when necessary lighted at dusk. Fellows' tickets and small book orders will admit to them; and to render them select the minimum charge to the public will be half a crown. Members will have personal admission. From wishes expressed at General Meetings and otherwise conveyed to them the Council believe that a summer fête, to be held in the evening, would yield gratification to many of the Fellows, and they will give the subject their consideration. Fellows' privileges will remain as settled this year. Lists of these and of the promenades, exhibitions, and shows for 1878 will be sent to each Fellow and Member in due course. Although the position of the Society has improved to an extent that could scarcely have been anticipated at the beginning of this year, the Council must remind Fellows and Members, especially those resident in London, that the aggregate amount of their annual subscriptions is still far short of the £10,000 which must be raised from that source during the next twelve months to prevent the forfeiture of the South Kensington Gardens. The money must come from the subscriptions of Fellows and other annual subscribers. If not so raised the Gardens will be forfeited, and perhaps built over; if so raised, they will be secured to the Society for fifteen years. The Council believe that if Fellows and Members exert themselves individually to induce their friends to join the Society, the amount required, which exceeds the average income from subscriptions in the years 1871 to 1874 inclusive by less than £2000, can easily be obtained. If the Gardens are to be preserved this effort must be made at once.

— WE have received the following extract from the translation of the General Regulations issued by the Ministry of Agriculture and Commerce, relating to the PARIS UNIVERSAL EXHIBITION OF 1878. In the ninth group (horticulture) Class 85—conservatories and horticultural apparatus—includes also gardeners', nurserymen's, and horticulturists' tools; apparatus for watering and keeping turf in order, &c; large conservatories and apparatus appertaining thereto; room and window conservatories; aquariums for aquatic plants; fountains and other means for ornamenting gardens. Class 86—flowers and ornamental plants—comprehends species of plants and examples of culture exhibiting the characteristic types of the gardens and dwellings of each country. Class 87—vegetables—species of plants and examples of culture exhibiting the characteristic types of the kitchen gardens of each country; and Class 88 fruit and fruit trees, species of plants and specimens of products exhibiting the characteristic types of the orchards of each country. Class 89—seeds and saplings of forest trees—refers to species of plants and specimens of products illustrating the processes followed in each country for planting forests; and Class 90—plants for conservatories—is intended to illustrate the mode of culture adopted in various countries with a view either to pleasure or to utility.

— MANCHESTER BOTANICAL SOCIETY.—The following are the dates of meetings arranged for 1878:—Annual Meeting, January 14th; Floral Meetings, Town Hall, March 19th and April 30th; Great National Exhibition, June 7th to 14th; National Rose Society's Show, July 6th; Cottagers' Show, August 3rd; Chrysanthemum Show, November 26th.

— MR. KIPPS states that there are many complaints of the young leaves of *HOLLIES* falling off extensively in the neighbourhood of Warrington, and asks if a similar occurrence has been observed in other places. He would be glad also to know the cause of the defoliation. The great crop of berries on many trees has doubtless impaired their vigour considerably. We noticed many Holly sprays in Covent Garden Market at Christmas nearly leafless.

— "A COUNTRY VICAR" writes—"Assuming that the POTATO DISEASE is caused by a fungus, I should like to ask whether anyone has tried to kill the fungus by applying a solution of carbolic acid to the tubers before planting?"

— FEW stove plants are more brilliant at this period of the year than well-grown *GESNERAS*, such as *G. cinnabarina* and *G. exoniensis*, and their foliage is as handsome as their flowers are bright. We have recently seen plants in 6-inch pots with large velvety foliage and glowing pyramidal spikes of flowers of the most dazzling colour. For the winter decoration of stoves and even warm conservatories, also for dinner-table embellishment, we cannot imagine any plants producing a richer effect than these. They are also of easy culture. A shelf in a well-heated stove, Cucumber-house, or Pine pit if suitable, will accommodate a goodly number of plants, which when in bloom keep fresh and healthy in a minimum tempera-

ture of 50°. All who desire bright flowers to succeed the *Poinsettias* should grow these handsome *Gesneras*. For flowering at this period of the year the tubers must be potted in July.

— WE are informed that H.R.H. the Prince of Wales has presented a GOLD WATCH to MR. C. EDMONDS, who is about to retire from the superintendence of the gardens at Chiswick House; and that the Duke of Devonshire provides a pension for Mr. Edmonds in recognition of his long and able services. Mr. May, who has for some time past been foreman at Chiswick, is promoted to be head gardener.

— A CORRESPONDENT, "T. L.," informs us that Miles' hybrid spiral *MIGNONETTE* is as valuable for winter as for summer decoration. He has, he states, plants now flowering profusely, and the spikes are both very large and highly fragrant. A great impetus should be given to the culture of this fine variety by the liberal prizes offered by Messrs. Brooks & Gallop—viz., £10, £7, and £5 for twelve plants in 6-inch pots, to be competed for at the Royal Horticultural Society's Great Summer Show, which opens on May 28th at South Kensington.

— WE understand that Captain Carter of Brighton, and T. C. Gravelly, Esq., of Cowfold, Horsham, have kindly consented to act as local Secretaries of the NATIONAL ROSE SOCIETY in their respective localities.

— A CORRESPONDENT writing to us from the State of Wisconsin, U.S.A., and who has resided for several years both in England and America, is of opinion that the danger of the COLORADO BEETLE becoming established in England is not nearly so great as is represented. He states that in the district where he resides that it is only during exceptionally bright and hot summers that the "bug" does serious damage; in ordinary seasons they "take no notice of it." The English climate he considers to be too cool and moist for the beetle to increase to anything like the extent it has done during the long tropical summers in America. He describes the "bug" as a tropical insect that will not "succeed" in a temperate climate. We hope he may be right, but at the same time shall consider it prudent to adopt every possible means to prevent the experiment being tried in our gardens.

— WE lately noticed in one of the houses at Messrs. Osborne's, Fulham Nursery, a very fine group of that valuable winter-flowering plant *LUCULIA GRATISSIMA* in small pots. The plants were only about 5 or 6 inches in height, perfectly clean, the foliage covering the pots, and the flowers very fragrant. In another house the lovely *Plumbago rosea* was producing grand spikes of flowers. For the stove as a pot plant nothing can be more graceful than this *Plumbago*. The flowers are also suitable for cutting, but they do not last long in water.

— MR. ROBERT FOULIS, who was gardener and bailiff at Fordel, Fifeshire, for more than fifty years, died on the 21st ult. "full of years and honours." He was in his eightieth year, and was the recipient of the Neill prize awarded by the Managers of the Royal Caledonian Society in 1876, and was subsequently presented, at a complimentary dinner given in Edinburgh, with a gold watch and a purse of sovereigns. Mr. Foulis was a man of considerable attainments, and was held in great esteem by all who knew him.

— WE regret to hear that PILFERING FROM SUBURBAN GARDENS is unpleasantly common. A valuable collection of hardy Ferns recently disappeared from a rockery on the west of the metropolis, and we are informed that several Roses have been stolen from Mr. Hales' collection at Tottenham. The disappearance of plants from window-sills is also prevalent. It is possible that a gang of nocturnal thieves have adopted this mode of "dealing in plants," stealing them from one district and selling them in another. It is a pity that such rogues cannot be caught and convicted.

— SINCE the weather has continued mild during such a long period, it will be well that the POTATO STORES be examined. The tubers for planting will, if stored in any considerable thickness as they are often obliged to be, have now commenced growing, and if not exposed to light and air the early growths will be wasted. It is of great importance that the seed tubers be well prepared so that their growth is slow and sturdy, which is the first condition for securing early and good crops. If kidney Potatoes are placed on their ends in trays or shallow boxes it is surprising how many can be accommodated in a small space; and if these are placed in a light

place and in gentle warmth they will be in a much better condition at planting time, and eventually more profitable, than if left to produce weak growths in the stores or in a dark place. We direct attention to this simple but important matter before serious evil is done by thick or prolonged storing of the seed tubers. They should be examined at once and be placed in a position where their growth can be green and slow, not white and rapid.

— It is, perhaps, not generally known that the distinct and bright *BEGONIA FRÖBELII* not only comes quite true from seed, but that attractive flowering plants are produced the same season that the seed is sown. The seed should be sown in heat as early as possible, and with careful and good culture floriferous plants will be produced during the summer and autumn. The colour of the flowers is very bright, and the habit of the plant is distinct from the ordinary type of tuberous Begonias, inasmuch as the leaves and flower stems of *B. Fröbelli* issue direct from the root the same as *Gloxinias*. Well-grown plants are very attractive for conservatory decoration, and are also suitable for flower-garden purposes.

— We have received the "Garden Oracle" by Mr. Shirley Hibberd, and are pleased to observe that it maintains the reputation it has enjoyed for many years in furnishing useful information on a variety of subjects.

— THE practice of planting MEMORIAL TREES has long been a favourite occupation with the members of the Royal Family, and on occasion of Her Majesty's recent visit to the Premier at Hughenden, trees to commemorate this special mark of the Sovereign's favour were planted on the lawn by the Queen and the Princess Beatrice. The trees selected for the purpose were *Picea nobilis* and *P. Nordmanniana*.

— EVERYTHING, says an American lady in the *New York Herald*, which tends to make us better and happier, to purify our lives and refine our tastes, should find a large room in our sympathies. I take the ground that it is the duty of every household to raise at least a few flowers. We need them for our children's sake, we need them for our friends, we need them to beautify our homes and make them attractive, we need them for festive occasions—and oh! if the destroyer enters our dwelling and lays some loved one low, how their frail but beautiful forms send our thoughts heavenward and almost mitigate our grief!

— We are informed that the RICHMOND HORTICULTURAL SOCIETY is in a flourishing state. Last year's income exceeded £500; upwards of £230 was expended in prizes, and a balance of £50 is in the Treasurer's hands. During the ensuing year medals are to be had in lieu of money if desired by the successful exhibitors. The affairs of the Society have been conducted both with spirit and prudence by Mr. Chancellor, the Secretary, and an efficient Committee, who have merited the success they have achieved. No suburban shows have surpassed those held at Richmond during the past few years, and we hope for similar successful gatherings in the future.

— "A KITCHEN GARDENER" writes, "We have a very fair variety of *CHRYSANTHEMUMS* here, and we have had an excellent show of flowers all through November and December. In our house we had a front row over 300 feet in length, which was greatly admired, but now when the new year is only three days off we are left with only one variety in flower, a yellow, named Japan Dragon. Would any of your numerous readers kindly name a few late-flowering sorts which would come into flower at the beginning of January and continue in bloom throughout this month? Varieties flowering now would be much more valuable than the very early kinds."

— THE by no means common herbaceous plant *CHELONE OBLIQUA* has been particularly floriferous this season. It has been in bloom from the middle of July to the middle of October; and notwithstanding the almost ceaseless rain that has descended on it during the greater part of that time, it has maintained a constant display of its beautiful purplish-red flowers. It is a choice herbaceous plant, worthy of a place in the gardens of the most fastidiously exacting persons as to what shall and what shall not be admitted to their collections of that class of flowers. It is from first to last a tidy-looking plant, and that without causing any trouble in staking or otherwise, its stiff woody stems requiring no support whatever.—(*Gardener.*)

— "A SURREY AMATEUR" calls our attention to the "capriciousness" of his *LAURUSTINUSES*. Last year, he says, when he had no Holly berries and required *Laurustinus* flowers for Christmas decoration his shrubs were only "in bud," and

the flowers did not expand until February; this year, now, Holly berries are plentiful and *Laurustinus* flowers are less required, the shrubs are covered with flowers. As the autumn of 1876 was not colder than that of 1877 our correspondent cannot account for the striking difference in the period of his shrubs flowering. Neither can we.

— IN many parts of the country PRIMROSES in the hedges are in full blossom. Owing to the wet season they became well established in the soil; then came a spell of dry weather, which ripened the growth, and this, followed by mild and open weather and genial rain, has induced their early floriferousness. Violets are also flowering freely in the lanes of Sussex.

— MR. ERNEST BERGMAN asks if readers of the Journal would state the age and size of any large *ARAUCARIAS* in the gardens of this country, and where such trees are growing. We should be glad to receive information on this subject.

WORK FOR THE WEEK.

KITCHEN GARDEN.

ANY digging and trenching yet remaining to be done should be proceeded with as expeditiously as the weather permits. Much of this kind of work is in arrear owing to the unfavourable state of the ground for wheeling manure. It is questionable whether it would not in wet seasons be advisable to dig or trench the ground before it is manured, placing the manure on afterwards during frost. The dung would lose little or nothing by exposure, and the extra turning-over of the soil to get it under could not act otherwise than beneficially. Kitchen gardens long under cropping would be improved by the addition of fresh loam, especially light and shallow soils; very light soils are permanently improved by a good marling, whilst heavy soils are improved by ashes charred, refuse, or burned clay. Take advantage of every opportunity to secure material for compost. Road scraping, parings of turf (no matter how rough), ditch cleanings—anything in fact that when reduced will make a heap of soil, turning it over not more distantly than every three months, and if fresh lime be added at the rate of one ton to six of compost decomposition of the vegetable or animal substances will be more speedily effected.

If a sowing of Peas was not made in autumn, or if those sown then are not doing well, make a sowing now on strips of turf cut 2½ inches thick and 4 inches wide. Cut a hollow in the soil side of the turf half its depth, sowing the seed in the hollow, and cover with an inch of light soil. Place on the floor of a late Peach house, orchard house, or cold frame, and when the Peas are 4 inches high plant the turves containing them at the foot of a south wall. Let the upper sides of the turves be an inch deeper than the surface of the ground. Dwarf kinds, as Little Gem, Blue Peter, or Unique, may be sown one foot from the wall, and will come in very early; William I. and Shah to be sown on warm borders with the rows 8 feet apart. Horseshoe drain tiles, shallow narrow boxes, or pots may be employed for sowing-in in lieu of turf.

Where Cucumbers and Melons are grown by the aid solely of fermenting materials preparation should be made for forming the beds by throwing the material into a heap, watering if dry, and turning it over when in good heat, casting the outside to the inside, the object being to induce a high condition of fermentation and to get rid of the rank steam. Beds to be made of sweetened dung and leaves about 8½ feet high preparatory to planting with Potatoes, also for sowing Carrot, Cauliflower, Lettuce, and Radish seed. When the heat has risen place the frames on the bed and cover it with 4 inches of rich light soil for the seeds, and 6 inches for the Potatoes. The Carrot (French Forcing) and Radish (French Breakfast and Wood's Frame) may be sown together, the Radish being drawn before the Carrots, and the Lettuce (Early Paris Market) sown in drills 6 inches asunder, and the Cauliflower (Dwarf Erfurt Mammoth and Early London) between the rows, pricking off the latter when having a rough leaf, and thinning the Lettuce to 6 inches distance, planting the thinnings on a warm border. The lights must be drawn down in all mild weather; any attempt at keeping close until the second leaves have formed will destroy the crop; but when the second leaves are formed the lights may be kept closer, admitting air however freely, and keeping moist by watering with weak liquid manure with the chill taken off. Protection must be given in severe weather; it need not be more than to secure safety from frost. The Potatoes—Veitch's Ashleaf is first-rate, also the old Ashleaf and Myatt's Prolific—to be planted with sprouts an inch long (they having been placed in boxes in a warm place a fortnight previously) 4 inches deep, making sure that the temperature of the soil at that depth is not over 75°. No air need be given until growth appears above the soil, when air must be admitted freely, seeking to obtain as high a day temperature (55° to 65°) as can be had with moderate air-giving without drawing the plants, making safe at night by ample protective material over the lights in severe weather.

Continue to put in successional batches of Seakale and Rhubarb, they forcing readily in a Mushroom house or other dark place with a temperature of 55° to 60°; also Asparagus, which is best forced on beds of fermenting material. Admit air freely in mild weather to Lettuces in frames and Cauliflowers under handlights. If slugs are troublesome sprinkle with quicklime after removing any decayed leaves, and stirring the soil about the plants. Look over Broccoli; any of Snow's or Veitch's having heads 4 inches across to be taken up and planted in frames where they can be protected from frost. Pot a few roots of Tarragon, Mint, and Sorrel, placing in a vinery or other house at work. Parsley may also be potted and if placed in a Peach house started about this time will be found very useful in severe weather. Small saladings is much in demand at this time of year. Continue sowing at intervals of four or six days, or more distantly, according to the demand; it, though brought forward quickly in a temperature of 60° to 75°, is best removed to one of about 50° when fit for use. Endive will now form the principal saladings. Keep it safe from frost and wet; tie up or cover, so as to have it thoroughly blanched, which takes from three weeks to a month in cold pits, whilst in a Mushroom house it blanches readily in ten days to a fortnight. Protect Celery in severe weather with litter, removing the covering when mildness ensues.

FLOWER GARDEN AND PLEASURE GROUND.

Beds of bulbs, and such plants as Fancies, &c., planted in autumn will be the better if mulched; it contributes to the good appearance of the beds, and prevents the soil being acted on by frost to the upheaving of the plants. Cocoa refuse is a capital material, also light compost, as decayed leaves. Herbaceous borders should have a dressing of compost at least once a year, taking advantage of the first frosty weather to get it on, and of the first mild day to fork it in. It is now that the beauty of evergreens is apparent; they are only enjoyable when the lawn is kept free from wormcasts, which are best removed by a wood roller followed by an iron one, making the turf look firm and fresh. Walks too must be swept and well rolled. Neatness everywhere prevailing renders a pleasure ground as interesting, if there be a goodly assortment of evergreens, and as enjoyable at this season as any other. Push forward all alterations, especially groundwork, in order to give time for settling and being able to regulate any inequalities before turfing. Any ground sufficiently advanced for the turf may have it laid whenever the weather is mild. Though we do not advise the planting of evergreens in midwinter, exception may be had to work of this kind when the shrubs are not crowded, and it is only a question of moving them with good balls from one position to another in the same grounds. Deciduous trees move quite as well in mild weather at midwinter as any other time, provided the roots are not long exposed to the atmosphere and the trees are secured against winds after planting. Choice Conifers we consider are best planted in spring, just before commencing growth, or in early autumn; but the hardier kinds will move at almost any time from September to April, the chief considerations being good roots and thinly grown specimens.

FRUIT HOUSES.

The trees in the earliest Peach house if started at the beginning of the month will now be in flower. The temperature from fire heat by day may be 50° in dull weather, rising to 65° with sun, air being freely admitted and a little left on at night, anything like a close stagnant atmosphere being fatal to the blossom; at night the temperature may fall to 40°. A moderate moisture in the atmosphere will suffice; in bright weather the floor may be sprinkled in the morning, the soil being kept in a thoroughly moist condition. Impregnate the blossom either by shaking the trees lightly in the early part of the day, or go over each blossom with a camel-hair brush and apply some of the pollen to the stigma. The small-flowered kinds set much better than the large-flowered, some of the latter being deficient of pollen. Take from those having abundance and apply where there is a deficiency. A hive of bees placed in the house will do the work much better than any shaking or brush, the bees evidently enjoying the warmth and the work. Later houses to have the trees cleaned, pruned, and tied, and the borders dressed, giving a good watering. For the first fortnight no fire heat need be applied unless frosty, when, it being necessary to have the fruit ripe by a given time, the temperature should be kept at 50° by day and 40° at night, allowing it to rise to 65° by day from sun heat, accompanied by plenty of ventilation, sprinkling the trees morning and afternoon until the blossom commences to open, when the sprinkling of the floor in place of the trees will be sufficient. If the roots are partly outside that part of the border should be covered with leaves and litter 12 to 15 inches deep in a state of fermentation. It may not warm the border much, yet the rains, which pass through the warm litter, will reach the roots at a higher temperature than were there no such intervening material; besides, such coverings attract the roots to the surface. For the same reason Vine borders should be covered with not less than 18-inch thickness of hot dung and leaves, replenished from time to time as occasion may arise; and for raising a genial warmth and moisture inside the house a bed of fermenting material is highly to be recommended, as lessening the necessity for fire heat and

securing in most instances a good break. A temperature of 50° minimum and 65° maximum from fire heat is to be advised until the eyes break, with a rise from sun heat and air to 75°, after which the minimum should be raised to 55°, having it 60° by the time the shoots are an inch long, and 65°-60° night when in leaf, and 70°-75° by day. Nothing is so injurious as a high and dry atmosphere in the early stages of growth. The Vines to be sprinkled morning and evening, and the floor, &c., damped at noon, and the evaporation troughs kept full of water always.

PLANT HOUSES.

The conservatory will be gay with Camellias; those swelling the buds may be assisted by weak liquid manure, keeping the soil thoroughly moist. Plants in flower or approaching thereto require more plentiful supplies of water than those at rest, but over-watering hardwooded plants is as baneful when in flower as at any other season. Conservatories being kept much drier than ordinary plant houses, we advise more copious supplies of water to be given the plants to lessen in some degree the effects of the drier atmosphere. A batch of Hyacinths, Narcissus, &c., should be taken from their cold quarters and be introduced to a house with a temperature of 45° to 50°, placing them on shelves near the glass; and if a few pots of Violets are at command introduce them at the same time; their perfume is always acceptable. We have De Parme Violet in 4½-inch pots—the sweetest, most floriferous, and continuous-flowering of all the Violets, this being a Neapolitan; with double white and red Primulas, Persian Cyclamens, Roman Hyacinths, Double Roman and Paper White Narcissus, are all sweet beautiful and dwarf, which anyone may have with a greenhouse for making their homes cheerful at the opening of the new year. Few plants force more readily than Rhododendrons and the hardy Azaleas, the latter combining fragrance with beauty. Of Rhododendrons early-flowering kinds should be chosen. Early Gem is very useful, and other good varieties were named last week by Mr. Moorman. Of Azaleas the A. mollis vars. are admirable, as are the many Ghent varieties. Some of the dwarf Rhododendrons are very sweet, notably R. fragrans and Govenianum. The Guelder Rose, with its "balls of snow," is fine for forcing—finer still the Japan species Viburnum plicatum with its globular heads of white flowers; Prunus sinensis flore-pleno, also with double white flowers; Deutzia gracilis, known to everyone, and D. crenata candidissima plena have white flowers, which should have a place among forced shrubs. Lilacs—Persian White and the old White Lilac—need no blanching to have the flowers white, but Charles X. has larger flowers—purple if exposed to light, but may be had white by growing in the dark. Few plants are sweeter than the trailing Daphne Cneorum major, its pink flowers along with those of Kalmia latifolia and K. myrtifolia being very beautiful. In herbaceous plants are Spirea japonica and S. palmata, both of which require very plentiful supplies of water when in growth, and to be kept from tobacco smoke, which injures the foliage. Dielytra spectabilis is a fine decorative plant in early spring, and forces splendidly; Lily of the Valley, with flowering crowns an inch apart in pots or pans along with a goodly number of Roses Tea and Perpetual, also Moss for buds, all prepared for the purpose, the gardener with conveniences for growing them may look complacently upon the coming season. They will do in a greenhouse, Peach house, or a vinery. Roses require to be brought on gradually, the Teas requiring very little pruning, merely cutting out any old exhausted wood; the Perpetuals cut back to two or three eyes, according to the strength of the shoots.

TRADE CATALOGUES RECEIVED.

James Veitch & Sons, Royal Exotic Nursery, Chelsea.—*Illustrated Catalogue of Vegetable, Flower, and Farm Seeds, Horticultural Implements, &c.*

B. S. Williams, Victoria and Paradise Nurseries, Holloway, London.—*Illustrated Catalogue of Flower, Vegetable, and Agricultural Seeds, Implements, &c.; also General Plant Catalogue.*

Daniel Brothers, Norwich.—*Illustrated Guide for Amateur Gardeners and General List of Garden and Farm Seeds.*

Francis & Arthur Dickson & Sons, 106, Eastgate Street, Chester.—*Illustrated Catalogue of Vegetable, Flower, and Farm Seeds.*

John Matthews, Royal Pottery, Weston-super-Mare.—*Illustrated Catalogue of Flower Pots, Vases, &c.*

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense. Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

BOOKS (Rector).—The best book on the flower garden is the "Handy Book of the Flower Garden" by David Thomson, published by Blackwood. Two little volumes published at our office—"The Flower Garden Manual" and "Florists' Flowers," also contain much information such as you require.

GARDEN PATHS (Mrs. Chapman).—There is no book specially devoted to the formation of garden walks and paths, but you will find ample information on the subject in any good work on gardening, such as the "Cottage Gardener's Dictionary."

GRAFTING ROSES (A. B. C.).—April is a favourable month for the operation. The kind of stock depends upon the form of tree you wish. Manetti for dwarfs, the Dog Rose for standards.

CHANGE OF MANURE (S. G.).—As you require the stable manure for another purpose than your gardening, and your soil is infested by grubs, apply guano and common salt.

GARDEN DIARY (Gardener).—Select one from Lettis' Diaries. The quarto size would suit you, as there are spaces for notes on each day.

MYROBELLA OR CHERRY PLUM (Hather).—This is the *Prunus Myrobalana*, a native of North America, and grown in shrubberies and gardens as the Cherry Plum. Its rate of growth is that of the common Plum, and is from 15 to 30 feet high, being most dwarf in poor soil.

YELLOW-BERRIED HOLLY (Constant Reader).—It is very commonly cultivated, and is only a variety of the common Holly. Botanists distinguish it as *Ilex Aquifolium flavum*.

PRIMULA LEAVES DECAYING (A Subscriber).—Being very luxuriant and placed near the glass they have been injured by the low night temperature.

CORRESPONDENTS (J. W. T.).—We have them in all districts of the British Islands.

CUCUMBER ROOTS DISEASED (H. B.).—The excrescences are caused by the puncture of a beetle, and in almost each excrescence a maggot will be hatched.

APPLES (R. W.).—Lord Lennox and Bramley's Seedling are in use from October onwards through the winter months.

MAGNOLIA FOR SOUTH WALL (J. H. E.).—We presume you require an evergreen variety. *Magnolia grandiflora* *Gallisoniensis* produces its large white fragrant flowers freely on young plants; *M. grandiflora exoniensis* being also free-flowering, but not upon young plants. Either will suit you. For the "trelliswork screen through which the north wind blows" no evergreen climber except Ivy would succeed, but it is probable that *Cotoneaster microphylla* or *Berberis stenophylla* would cover the screen. *Jasminum nudiflorum* is very cheerful in winter by its bright yellow flowers, but the plant is deciduous. The Apple is Dr. Harvey. Any nurseryman can supply you.

HEATING CUCUMBER AND MELON HOUSE WITH FLUE (G. H.).—As you do not require fruit before July you may dispense with top heat, only we presume you will require fruit late in the season, in which case top heat is necessary. Eight-inch drain pipes will answer if they are not subjected to too great heat, which causes them to crack. The furnace need not be more than 2 feet long, 13 inches wide, and as much in height. It must be formed of fire bricks, and the top arched. An asphalt of a foot depth will be necessary. The flue should rise from the furnace its full depth—*i.e.*, the bottom of the flue should be level with the top of the furnace and should rise gradually, or may be taken level to the chimney. For a distance of 8 feet from the furnace the flue should be constructed of firebricks; indeed, we should use bricks entirely for the flue with firetile covers 2½ to 3 inches thick. Three bricks on edge will suffice for height, and 9 inches width inside, the covers 15 inches wide. Take the flue all around the house midway of the bed, which we presume you will form on each side of the house, having the pathway in the centre; the side walls of the beds next the path we should have built pigeon-hole fashion, so that the heat could be diffused in the house, the bed to be filled with rough rubble on both sides the flue and raised 6 inches above it, the top of the rubble being covered with turves. Every 3 feet along the bed we should introduce 3-inch drain pipes reaching into the rubble, having one end in the rubble and the other above the surface of the soil forming the bed; by placing a slate over each pipe, the amount of top heat may then be regulated. The depth of soil should be 10 to 12 inches. If you use pipes cement the joints, leaving places that can be opened for cleaning the flue.

ROSES FOR AN EXPOSED SITUATION (Wm. Strong).—The heavy loam being well drained would be the most suitable for the Hybrid Perpetuals upon the Manetti stock, of which varieties that succeed with us are Alfred Colomb, Annie Laxton, Baronne de Rothschild, Baronne Louise Uxkuil, Bessie Johnson, Boule de Neige, Capitaine Christy, Charles Lefebvre, Claude Levet, Comte Raimbault, Comtesse de Chabrilant, Comtesse d'Oxford, Diann, Duc de Rohan, Duke of Edinburgh, Dupuy-Jamain, Edouard Moren, Etienne Levet, Fisher Holmes, François Courtin, François Michelin, General Von Moltke, John Hopper, La France, Louis Van Houtte, Lyonnais, Madame Lacharme, Madame Victor Verdier, Maréchal Vaillant, Marquise de Castellane, Miller Hayes, Prince Camille de Rohan, Princess Mary of Cambridge, Sénateur Valase, Thomas Mills, Xavier Olibo, Comtesse de Serey, La Souveraine, Miss Hassard, Princess Antoinette Strozio, Sir Garnet Wolseley, Duchesse de Vallombrosa, Oxonian, Antoine Ducher, Arthur Oger, Hippolyte Jamain, Comtesse d'Oxford, Madame Clemence Joigneux, Jean Dalmais, La Ville de St. Denis, and Gloire de Dijon (Tea-scented). Dwarfs only are suitable for exposed situations.

WOODLICE IN PEACH WALL (J. Q. F.).—We presume the mortar is much wasted forming crevices between the courses of bricks. The best process in that case would be to have the wall pointed, picking out the loose mortar and employing cement with a half part sand. Cement alone would cause too hard a substance for nailing. No wash that we know would reach the woodlice, as they will be secreted in the crevices of the wall.

PLANTING ROSES (Sussex).—We presume they are dwarfs. Plant them 2½ to 3 feet apart every way in quincunx order, the junction of stock and scion being buried 2 to 3 inches beneath the surface, mulching after planting, deferring pruning until March.

DRYING LILY OF THE NILE IN WINTER (Idem).—This is the growing season of this *Richardia*. They should be kept well supplied with water and have liquid manure at every alternate watering. If the plants are in a cool house they are better kept rather dry at the roots, yet having sufficient water to maintain the foliage fresh. If wanted to flower in winter afford a temperature of 55°-50° by night, and 60°-65° by day.

RENEWING VINE BORDER (J. B. Boyd).—We should remove the surface soil down to the roots and cover them with 6 inches of fresh soil, or if the roots are near the surface merely loosen it and apply 2 to 3 inches thickness

of fresh soil. The compost employed should consist of turfy loam light rather than heavy, with a sprinkling of half-inch bones, a bushel to about a cartload of compost, and twice that quantity of charcoal; and if the border were covered with fermenting materials 18 inches thick it would be a means of attracting the roots upwards and encouraging the speedy possession of the fresh compost. The road scrapings mixed with gas lime would not only be an unsuitable but a dangerous application.

LIFTING GLADIOLUS (Idem).—The roots of "fine kinds" should be lifted and kept cool and dry, but safe from frost, until March or the usual planting time.

STOVE PLANTS (Economy).—If you consult our little volume, "Indoor Gardening for the Many," you will be able to select for yourself.

FASCINATION (G. Duffield).—No one has accounted for such malformation. It occurs in various soils, seasons, and species.

SULTANA RAISINS (W. K.).—They are the dried berries of the White Corinth Grape Vine. It is described as follows in Dr. Hogg's "Fruit Manual"—"Bunches small, shouldered, and loose. Berries very small. Skin yellowish white, changing to amber, covered with white bloom. Flesh very juicy, sub-acid, and with a refreshing flavour. The seeds are entirely wanting. Of no value."

NAMES OF FRUITS (Knutford).—Your Apple is Trumpington. (H. L. E.)—Huyshe's Prince Albert.

NAMES OF PLANTS (Notice).—1, *Juniperus excelsa*; 2, *Thuja borealis*. (T. Granger).—1, *Sparmannia africana*; 2, *Eupatorium odoratissimum*; 4, *Echeveria coccinea*; 5, *Saxifraga sarmentosa*; 6, *Pilea allitricoides*; 8, *Davallia Mooreana*.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

So immediately are many of our readers interested in and identified with agricultural as well as horticultural pursuits that we have decided to add a new feature to the columns of this Journal. That the addition will be generally acceptable we have sufficient assurance from the fact that it is the pressure imposed on us by the expressed requirements of many of our readers which has led us to widen the scope of our pages.

The alliance of Agriculture and Horticulture is so intimate and so natural that in thousands of instances the twin sisters march hand in hand. We rejoice in having the best evidence that the pleasures of the garden are increasingly popular; but we also know that they are with many divided pleasures—the home farm of the nobleman and country gentleman, and the glebe of the clergyman, sharing, as they naturally must share, the attention of those to whose residences they are such important accessories; in fact the two pursuits of farming and gardening are linked together and interbound.

The leading object that has ever been kept in view in the conduct of this Journal has been to constitute it a reflex of country life—an instructor in the wholesome and salutary pursuits in which so many are engaged—a medium of intercommunion between those of kindred sympathies. But it cannot be a complete reflex so long as one link remains unattached. Where the garden is there must bees be, and here they have been mirrored faithfully and truthfully for a quarter of a century; with the home there is poultry, and poultry have been continuously recognised in these pages; with poultry are runs, more or less extensive, of arable or pasture land. All, except the latter, which constitutes the home farm of 5 to 100 acres or more, and is so wide in its import, and has such a direct bearing on subsidiary industries, are represented in these columns, and we now add the missing link—THE HOME FARM.

In taking this step we propose to act within and not to exceed the bounds of our most special domain. We do not propose to enter into matters in which we are not ourselves actually, pleasurably, and profitably engaged. Agriculture as an exclusive pursuit has its exponents and a press conducted with singular ability, and which disseminates information of which the large professional farmers of the country avail themselves; but there is another class—a numerically great and important class, thousands of whom are our constituents, whose agricultural operations are not sufficiently

extensive to warrant them in availing themselves of the means provided for their co-workers.

Many gardeners, we also know, have a real interest—indeed a direct share—in the management of land and of stock, and those who are not intimately connected with this branch of husbandry have yet a natural attachment to it, so that they are not only willing but anxious to become more intimately acquainted with a calling so closely allied to their own; indeed, it is to their advantage to render themselves acquainted with practical agriculture in its various phases, because the acquisition of such knowledge is so greatly calculated to be of very substantial benefit to them. Young men who are looking forward to secure engagements in the families of the affluent of this and other countries cannot fail to appreciate the importance of becoming acquainted with the cultivation of land and duties connected with it situated beyond the confines of garden walls. We could adduce many instances of the great advantage possessed by those gardeners who have acquired a knowledge of farming operations, and of others of the necessity of obtaining such knowledge. We could point to the advancement of gardeners to bailiffs, and bailiffs to stewards, because those so advanced have been sufficiently acquainted with the rudiments of agriculture, which has enabled them to attain to positions of trust and comparative independence. Twice within a few days we have been commissioned to fill vacancies where the possession of some farm in conjunction with garden knowledge was indispensable; and having the welfare of gardeners so earnestly at heart we would strenuously urge on young men the importance of giving a share of attention to agricultural pursuits, knowing as we do from long experience and many examples that in proportion to the acquisition of that knowledge so are their chances of ultimate advancement proportionally increased.

To owners, holders, and managers of land on a comparatively small scale—those, indeed, identified with home farms—the subject of land cultivation in its various phases of tillage, manuring, grain and root culture, pasture and dairy management, and the breeding and feeding of stock, is necessarily a subject of primary importance.

In bringing this section of home pursuits within the scope of this Journal it is not at the sacrifice of those other branches of home industries and pleasures which have so long been familiar to our readers, and which have been welcomed in such a remarkable manner. Gardening in the same practical manner as heretofore will continue to be treated by old and valued friends and assistants, who have proved their competency by their success, aided by new writers of special proficiency in their several departments. Bees follow the flowers as usual, Poultry continue also, and the other allied features of home—Pigeons and Cage-birds; but Poultry is no longer isolated from the land. Thus the round of outdoor home exercises is rendered complete by including the Home Farm as a prominent and integral part of these pages.

The allied industries in connection with agriculture will be included as necessarily proper subjects for discussion. The great improvements in the mechanics of the farm and household exert a considerable influence in successful and profitable management, and will receive attention by way of determining their merits and applicability. The important section of manures, which now constitute a trade of great magnitude, will also be embraced as a subject demanding particular attention, being fraught as it is with danger or benefit, profit or loss. The not less important subject of seeds for the farm will also be adverted to when it can be done beneficially. The selection of pure and good seed and the best varieties are obviously of the

utmost consequence in successful farming, and the trade now established in agricultural seeds is one of the most important industries of the country.

In treating as occasion may require on the allied industries of agriculture we hope not only to be able to impart information but to provide a means for the expansion of trade in farming and home appliances, which is desirable because so directly and widely beneficial. Our facilities for doing this are exceptionally favourable from the connection which it is our pleasure to have formed and retained for so long a period with the homes of the nobility, clergy, gentry, and professional men of Great Britain and Ireland, together with an important business relationship with the continent of Europe and America.

INTRODUCTORY.

IN COMMENCING a series of agricultural articles we propose to refer to subjects connected with home-farming both in the management of land and live stock, and to introduce observations and remarks at the time of year when they may be considered most appropriate. We will, however, before entering upon questions relating to the future, take a retrospective view of the past year. We find the past season upon the whole has been unfavourable to agricultural pursuits; the crops of roots for cattle and sheep-feeding have been a fair average produce, excepting potatoes, which are a failure; the crops of hay both of uplands and meadows have been abundant, although in the northern and mid-land counties the harvest has not been good, and much hay has been damaged; grass-feeding for cattle and sheep has been plentiful and nutritious; the crops of both grain and pulse are much beneath the average, and in many of the northern counties the weather has seriously injured and depreciated the corn samples. In the southern and eastern counties, however, the harvest has not been amiss. The occupiers of land, rather than complain, and knowing that they can neither control the seasons or prices of produce, ought not to set their minds so much upon corn crops for profit, but consider that ordinary farming is seldom profitable, and therefore study to adopt some special production which may turn to better account. As usual, during the past month the exhibitions of cattle, roots, and grain have been held in almost every agricultural district in the kingdom, and have greatly increased in numbers and importance during the last twelve or fifteen years. When we consider that the splendid animals, the beautiful specimens of roots and grain exhibited, are produced by the intelligence, experience, and capital of the occupiers of the land, they ought to be considered as a valuable lesson to all engaged in the management of land, especially by those who have recently entered, or being about to enter, upon farming operations. Young men and beginners in the present day have at the different agricultural exhibitions offered to their notice, free of cost, the results of, in many instances, a lifetime of study and industry in the production both of live stock and vegetable products. The lesson taught, however, refers more to the comparisons of the different kinds and sorts of live stock and the weight and quality to which they will attain than to any practical method of feeding, &c. In the same way referring to the enormous size of the roots of mangel, swedes, turnips, cabbage, &c., beyond the comparison of sorts and quality there is but little to guide the novice in agriculture. We find, however, in some local clubs, where prizes are given for acreage weight, that the judges give not only the weight per acre but the manure used, the time of sowing, the number of roots per pole, and other minute matters, which certainly form a capital guide to the uninitiated and teach a lesson not so quickly and easily obtained in any other way. The number of farmers in the United Kingdom it is said amount to 400,000, and it is further said that 20,000 fresh men enter the lists annually. To nearly all the latter the various objects at the exhibitions are comparatively new, whether of live stock, roots, grain, or agricultural implements, and are appreciated accordingly.

We will now refer to the meetings of the farmers' clubs held lately in different counties, and we find that most important subjects relating to agriculture have been introduced, generally by men of long standing and great practical knowledge. Yet we find that after the reading of a valuable paper, showing great ability and intelligence, a discussion is opened by the members present, many of whom possess equal experience with the introducer of the subject; nearly all are found to differ upon some points, showing the extreme divergence of opinion even amongst those who possess great knowledge of the subject both practically and scientifically. This being the case, it may be asked at what time of a man's life can he look forward to for the completion of his attainments in agriculture? We reply, that to the most gifted and the most industrious, human life is not long enough on account of the circumstances by which he finds himself surrounded, which are ever varying. We therefore conclude that the practice and science of agriculture can never be entirely acquired, and that

although we may live long we ought ever to admit that we have much to learn.

MODE OF FEEDING STOCK.

THIS should be regulated by the age and previous condition of the animal. Half-starved store stock require very moderate and not rich feeding, for all their vessels have been adapted to poor thin circulating juices, and they are, consequently, of small capacity, unsuited for rich thick blood. Norfolk farmers, who go in for lots of cake and corn, will not wait for lean animals, but buy them well fleshed and in good condition, so that good feeding is no novelty to them. A friend of mine always bought in the autumn high-priced lambs, almost or quite fit for the butcher, and then he could at once feed them on the best of food, and thus fatten his land and his growing animals at one and the same time. Lean stock make starved and lean crops.

The condition of animal voidances is a pretty certain evidence of the results that are being produced. Turnips are either food or physic according to the quantity eaten. Excessive purgation is inconsistent with fat production. Instead of the usual three bushels, from 80 to 150 lbs. is all I allow, in addition to other and drier food. Succulent turnips alone cause immense losses in our breeding flocks.

An admixture of cut hay, cut straw, pulped roots, bean or oat-meal, cake, malt culms, and bran with a little crushed linseed or linseed soup is a good mixture. I generally add some condimental food which contains fenugreek. Hay of fine quality is in itself condimental, owing to some of its fine grasses. My cattle have always access to water and rock salt in lumps in their manger: rock salt is also in our horse mangers. In covered and enclosed yards there are no draughts. Nothing will give cattle pleuro sooner than a draught of cold air in a warm place. The temperature should be as uniform as possible.

Why are ladies' lap dogs almost always fat? Because they are well fed and kindly treated, warm and comfortable, and not unfrequently washed and combed. I know that where cows are groomed daily they thrive. We all know that if they can get access to a haulm wall, or a clipped wheat stack, they will groom themselves most heartily and vigorously. I once clipped some cattle on boards and then brushed them, and they fattened quickly. We are too sparing of a little expense in these matters. Many of those grand specimens of obesity at our great cattle shows are washed and groomed, and carefully and delicately fed. In fact, we see their attendants thus feeding them at the show. An ill-tempered, brutal stockman should have immediate notice to quit. A bullock's tongue is a sort of brush or currycomb, which if frequently used, but down the back and other parts he cannot reach, and therefore he feels truly grateful for a brush or scratch on these parts. Sometimes they oblige each other in this matter. —J. J. MEOHI (at the London Farmers' Club).

LANCASTER POULTRY SHOW.

THE second Lancaster Show was held on the 19th and 20th ult. It is already one of the most successful secondary shows; indeed, the poultry department ranks with the first shows, for nearly all the best Birmingham and Crystal Palace winners were there; and these, both from the adult and chicken classes being shown together, made the competition in some classes exceedingly close and the Judges' task very difficult. The show of Pigeons was quite unequal to that of poultry.

Ducks came first on the list. The first pen of Rouens contained a magnificent Duck, but a miserably paralysed drake. The winning Aylesburys were all good. The winners in the Variety class were Paradise Ducks, Spotted-billed Ducks, and Pekins.

Dorkings filled four good classes. The cup for cocks went to the first Silver-Grey, a magnificent bird; second was Mr. Boissier's well-known cockerel, now overshadowed; third an old bird, which would have been easily beaten by the very highly commended cockerel had not the latter had his comb apparently pecked by a hen. In hens the first Birmingham pullet was first, the Birmingham cup hen, not now looking her best, second. The first and second Dark cocks were grand Dorking-shaped birds. In hens the cup and second were birds such as are seldom seen side by side, all the finer probably from the fact that their owner does not now often show; they are rather lighter than the fashionable colour; third a rich Dark hen with good white feet.

Brahmas.—The first Light cock was very good, free from yellow tinge which so many had; second and third were also fine birds. The hen class was a large one. Several well-known winners were left out for poor or dirty condition, and one Birmingham winner for having a slipped wing. First was a capital hen all round; second good too; third magnificent in size, but the sap in her feathers gave her a yellow tinge. In Darks the cup cockerel was as grand a bird as we have often seen; his comb is a trifle too high, otherwise he is nearly perfect. Second a good cockerel of Mr. Lingwood's, third a fine old bird rather out of condition. From the middle of the class the Dark Brahma hens were in a

miserable light, close to the ground and in a narrow alley. The Judge took a very long time in making his decisions in this class and in all the Cochins classes, having all the better birds carried for comparison to a lighter place. The cup hen is very clear and dark in pencilling and good in size; Mr. Lingwood's second very good in pencilling too, though not quite so distinct and grand in shape; third a hen which would in most shows command a first prize.

Cochins.—Cup and second in Buff cocks were Mr. Procter's two redoubtable champions. Among the highly commendeds was the Palace cup cockerel, beautiful in shape but too black in tail. In hens the first-prize bird was in our estimation nearly a model of Cochins shape and perfectly even in colour; second an enormous old hen; third and very highly commended Mr. Procter's well-known hens, grand in shape, but not equal in colour to the first-prize bird. Any other variety.—First a White cock as good as we ever saw, a bird which could hardly be beaten for a cup save by the wonderful Buff cock here shown; second a fine old Partridge first at Birmingham; third a very good White, claimed at ten guineas. In hens cup and second were magnificent Whites. The cup bird was best in leg feather, but the second, the Oakham cup bird, was in shape quite as good if not better; third a Partridge, the Palace cup bird we heard. Several very dark Grouse hens were shown in this class.

Game.—The Game classes were excellent, all the best-known winners appearing. The cup for cocks went to the now-famous hundred-guinea cockerel, now in the hands of Mr. Lyon; he hardly looked his best. The first Black Red was particularly good. The first Brown Red cock, the Birmingham cockerel cup-winner, was in grand trim; second a good adult cock. The cup for hens went to the first Brown Red in a class of nineteen, a very gamey bird. Duckwings and Piles both had two classes. In the Pile cock class both the Birmingham cock and cockerel were in the list. The first Pile hen was a very remarkable bird. The first Duckwing hen a very good bird of the year.

Hamburghs were splendid classes. Unfortunately some of the Blacks and the Golden-spangled and pencilled were in a very bad light. The cups went to a splendid Gold-pencilled cockerel and to a matchless Silver-spangled hen. First on the list came Gold-spangles. First cockerel was a well-marked bird, poor in tail. The first hen had the even moderate-sized mooning which we much admire. The cup Golden-pencilled cockerel is very even in colour and splendid all round; second apparently had a good honest comb. It was impossible to see their tails. The first hen had very rich ground colour, but barring on breast and tail weak. The Silver-spangled cocks were very good. The first-prize bird fine in carriage, with lovely sickles and even mooning. The three winning Silver-spangled hens were as good as we have ever seen. They had the advantage of an upper row, and so of some light. The lustre of the cup bird's moons was wonderful. Silver-pencilled cocks were an even class. The first had a beautiful tail, not a good comb. In Silver-pencilled hens the winners were all good, but the first-prize bird far ahead, being well marked and with a clear hackle—a combination now rare. Blacks were capital. First and second cocks were both good in carriage and with natural combs. Mr. Serjeantson's highly commended cockerel the greenest in the class, but with a little tinge on lobes. The first-prize hen was lovely, her owner's other bird almost better. Mr. Long's second-prize hen, too, very lustrous.

Spansh.—The cup cock had a very smooth face and good comb; second a longer but not so well-shaped a face. The first hen had an extraordinary face and a most cock-like appearance; she might certainly do duty for a cockerel early in the season; second had a fine face but too heavy a comb.

Leghorns had four well-filled classes. Time failed us to criticise them all; a glance showed us that the cup went to a beautiful White cock.

Houdans.—Cup went to a magnificent cock. He showed yellow in tuft and neck hackle, still we thought the award a good one; second had an ugly comb, and being in a small pen hardly showed himself off. We much admired Mr. Hibbert's very highly commended bird. The first hen was grand in all points; second had a beautifully formed tuft; third good with a handsome beard.

Crève-Cœurs and other French.—First cock a noble Crève, but with a little white in crest; second wonderful in lustre for a Crève, with a large but irregular crest; third a big La Fleche. The winning hens were all good Crèves in a bad light.

Any other Variety.—First in cocks a capital Silver Poland, second a White-crested Poland, third a fair Andalusian. The cup went to a grand Silver Poland hen, second a Golden Poland, third a Sultan.

Bantams.—Game Bantams had four classes. The cups went to the Black-breasted hen, the best by far in her class, and to the Pile cock, as good a bird as one could wish to see. The winning cock in the Any other Bantams was a Pekin, second a Black, third Mrs. Brasse's Japanese. Sebrights were fairly beaten for once. In hens first a good Silver Sebright, though we preferred Mr. Leno's highly commended bird; second a very good Black, third again a Black. The Selling classes contained some bargains, espe-

receive the same uniformly firm treatment every day of her life, and her habits soon conform to the daily routine. The complaints of kicking cows generally come from farmers who own but two or three cows, and not from those who make a business of handling them. There are, I suppose, occasionally confirmed kickers who have no business in any respectable herd, and that should be turned into beef immediately.—L. S. HARDIN in the *Ohio Farmer* (abridged).

—WOOD ASHES with the bits of charcoal in them, and coal ashes too, are excellent for the fattening pigs. Pigs cannot stuff themselves, week after week, without their stomachs getting out of order, and the bits of charcoal check acidity and regulate them and help to improve their appetites. We think our pigs cannot get along without the little pits of ashes in one corner of the pen to root over and pick the charcoal out of. It is their dispensary.—(*New York Rural*.)

—THE *Agricultural Gazette Almanack*, besides furnishing much useful tabulated matter and a monthly calendar of operations, contains special articles on prominent topics of agriculture, portraits and biographical notices of eminent agriculturists, also illustrations of the prize oxen of the year. It is a very useful publication.

—MR. G. FRY, of Navestock, Essex, has made some curious bets. Restricting himself to seed to be procured from Messrs. Carter & Co., he has laid £10 each against four other farmers that he will grow two acres of mangels against two acres grown by each of the others, who are all to obtain their seed from Messrs. Sutton and Sons. He has also made a bet of £100 with Mr. J. H. Smith, one of the four, that he will beat him.

—AN excellent authority has written as follows on feeding confined poultry. As it stands to reason poultry in confinement get no food but what is given to them by hand, it will always be difficult to keep them as economically as those that have their liberty. First, provide good food—bad corn and meal are always dear. Feed entirely on ground food, and, as we have often explained, feed only so long as the birds run after it. When they become indifferent they are not hungry. The most economical plan is, meal in the morning, whole corn at mid-day, and meal again in the evening. If this is correctly and carefully followed you will be surprised at the small cost of your poultry.

NATIONAL PERISTERONIC SOCIETY.—The annual Show of the above Society at the Crystal Palace is fixed for January 8th and 9th. A large collection of birds is anticipated, an unusual number of the members having signified their intention of exhibiting on this occasion.

EGGS IN WINTER.

WE cannot give a better reply to Mrs. L.—who desires eggs “when they are dear,” than the following, which has been written by one of our most experienced correspondents.

It may safely be said that in almost all the weathers fowls will lay at a certain age. This does not imply that they all do so at the same age. Some breeds are more precocious than others. Thus Brahmas and Cochins lay at from eighteen to twenty weeks if they have been well kept, and they will continue to do so. Good young pullets of these breeds will lay forty or fifty eggs at the time of year when they are most valuable. Say, for argument's sake, each lays forty, and they make 8d. each, produce 10s.; the pullet is eight months old, and has cost 8d. per month ever since she was hatched—cost, say, in round numbers, 6s. The hen may now be sold for 2s. 6d., or she may be kept to rear one of the broods that will form the laying stock for the next winter.

It may be that some may be disposed to think our descriptions visionary, or that we draw on imagination. It is not so. The secret of the profit is this: Those who will not sell when the use of a bird is lost for a time are not to look for profit, because they are following a hobby. The first sound that indicates broodiness in the sentence of death; and the place will remain vacant till the late autumn, when some pullets will be introduced in order that they may get accustomed to their place before they begin to lay. It is the fate of all food-producing animals to be weighed against their own produce, and whenever their consumption would equal or exceed their contribution they are doomed to die. They are not only feeding men, women, and children with their carcases, but that production of food for others must be the livelihood of their owners. Our egg-producing hens are then subject to this test, and he who is determined to make them profitable thus tries them:—“Two good hens, very good hens indeed, cost 7s. two months since. Have laid seventy-five eggs, sold for 25s.; cost 8s. 6d. keep: 14s. 6d. profit. Won't lay any more at present. Will make 2s. 6d. a-piece to sell. Better sell them.” It is in vain the wife says it is too bad to kill the poor things, and the little daughter stipulates for the same one. Nothing is more inexorable than money-making. Everything but honesty falls before it. It requires no small firmness on the part of Paterfamilias to deny

the loving request, and to be deaf to the prayers of wife and daughters, when interest says “kill,” and they say “spare.” The poor man's patience, too, is often sorely tried; for if there is a pet among the hens it is generally one that has, by some accident, lost a leg, or as a crossed bill and is unable to pick up food, or carries its tail on one side.

But these hens are killed because the food for them must be bought. The same cause for killing does not exist in a farmyard, because, whether rightfully or wrongly, it is supposed fowls cost nothing to keep in a farmyard, and because there a profit is made of chickens.

RABBIT BREEDING.

THE Rabbit is extremely prolific, and the multiplication that takes place in the species is very large. It is fortunate that many things war against the lives of the little animals, or we should be completely overrun with them. As it is, what with the damp and cold, and several animals to prey upon them, their fecundity is only sufficient to keep the warrens and fields stocked with them. The Rabbit does not breed so rapidly in captivity, but even in that state the powers of reproduction are simply extraordinary. A doe will have six or eight young ones in a litter, and as many litters in a year, so that each doe may produce from eighty to ninety or even a hundred young Rabbits in the course of the year; and when it is calculated that each pair of the young will be able to breed at six months old, and that each will probably bring forth its ninety or more young, the rapidity of the increase can of course be easily understood.

The doe Rabbit arrives at the age of puberty when about eighteen or twenty weeks old, although sometimes the change does not occur till the twenty-fourth week or even later. No good fancier will, however, allow a doe to become a mother at anything like so young an age. The exact age at which Rabbits should be paired must be regulated somewhat by the time of year at which they were born. If born in the spring they should not be paired before February. If, however, the doe Rabbit was born in the summer, say in June or July, they may also be paired in February. They will towards the end of the latter month be seven or eight months, and will have the prospect of the full breeding season before them. Rabbits born in the spring are always the best for breeding, as they are stronger and more healthy, and they also come in season nicely for the next spring. Does for litters thrown in the autumn must be kept back till late in the next spring or even into the summer, so that they may have attained the age of at least nine or ten months. Sometimes it is recommended to leave them till they are a year old. This we hardly think necessary unless they were born in the early spring, in which case if they were put to the buck when ten months old it would be in the depth of winter, a very bad time indeed. Sometimes a doe resolutely refuses to receive the buck. If she be put in a hutch within sight of him she will be likely to come on, or sudden change of diet from plenty to scarcity, or *vice versa*, will sometimes move them. Unless a doe of this sort is extremely valuable she should not be kept for breeding owing to the great trouble she will cause. If, however, she is exceptionally valuable, of course extra trouble must not be grumbled at. When the time for kindling has nearly expired the doe will begin to feel a considerable thirst, and to alleviate this—which is necessary to keep her cool and from eating the young—a little water or milk should be given her twice a day, beginning a couple of days or more before the period has expired. About the same time the doe will begin to exhibit considerable uneasiness, and will tear-up her bedding and carry it about in her mouth. This is often given as an infallible sign of pregnancy, but it is not so, as some does do it when their constitutions are ruffled in any way. But if she adds to the bedding fur or fluff from her own body then the fancier may be justified in considering matters fairly safe. It is no distinct guide as to time, because some does commence preparations several days, sometimes even a week before the expiration of gestation, while others do not make any preparations till they find the time quite close. Often the nest is made and the young born in a single night. As soon as there is reason to expect the young ones in a day or two it is a good precaution to cover the front of hutches with sacking so as to keep the cold out, but not so tight as to make the air offensive. Great quiet must be observed, as the slightest noise or even the sudden appearance of a stranger may cause the young mother either to destroy or neglect her offspring. With care 99 per cent. of the litters should be successful.—G.T.A.

DEATH OF MR. H. C. HENNING.—We have to record the death of Mr. H. C. Henning of Chiswick. His cheerful face will be greatly missed at the forthcoming Peristeronic Show, of which Society he was a useful member. In a very short space of time he had collected one of the best studs of Almond and Mottled Tumblers in the kingdom, and was an earnest and liberal supporter of these varieties at our principal shows. His straightforward conduct and amiable temper made him a host of friends in the Pigeon world, who will greatly deplore his loss. Mr.

Henning had hardly reached what is called the prime of life, and appeared a few weeks back, when we had the pleasure of meeting him, in perfect health.

USEFUL PIGEONS.

SOME years ago I wrote somewhat as follows on the Carrier Pigeon. This Pigeon is essentially useful; not a show bird—not a bird of points and properties, but of utility. Call the bird the Persian Pigeon, or the Turkish Pigeon, or the Scandaroon, or the Bagatin, or the Horseman; the bird is one and the same,

perhaps some larger than others, but substantially the same. The bird was a bird of utility, and capable of being trained to greater utility, and naturally feather or shape, save as tending to utility, would be uncared for. The shape of these Pigeons was well suited to cleave the air; formed as we make the fastest boats, they were to other Pigeons—for example, the Runt—what the University racing boat is to a barge. These Pigeons had also in common, notwithstanding differences of name, more or less of naked lump-like flesh round the eyes and above and below the base of the beak. From these birds came, by care and selection and good judgment in matching, a florists' flower of Pigeons—



Fig 4.—THE CARRIER.

the fancy English Carrier, just as in like manner came the Almond Tumbler and the English fancy Pouter.

As evidence of the great utility of the Carrier I quote the following from the *Fishing Gazette*—"The experiment which was tried last year of employing Carrier Pigeons for the purpose of bringing early intelligence each morning from the fishing ground of the results of the night's labour is again being resorted to this season, and with the most satisfactory results. One of the birds is taken out in each boat in the afternoon, and after the nets have been hauled on the following morning and the extent of the catch ascertained the Pigeon is dispatched with a small piece of parchment tied round its neck (?) containing information as to the number of crabs on board, the position of the boat, the direction of the wind, and the prospects of the return journey, &c. If there is not wind to take the boat back, or if it is blowing in an unfavourable direction, a request is made for a tug, and from the particulars given as to the bearings of the craft she can be picked up easily by the steamer. The other advantages of the system are that, when the curers are apprised of the quantity of herrings they may expect, they can make preparations for expediting the delivering and curing of the fish. Most of the Pigeons belong to Messrs. Moir & Son, Aberdeen. When let off from the boats the birds invariably circle three times round overhead and then sweep

away towards the land with great rapidity, generally flying at the rate of about a mile per minute. Two superior birds in Messrs. Moirs' possession have occasionally come a distance of twenty or twenty-five miles in as many minutes. Another of Messrs. Moirs' Pigeons flew on board the Heatherbell on Tuesday afternoon off the Girdleness bearing a slip of paper containing the intelligence that the boat from which it had been dispatched at 11.54 had a cargo of twenty-five barrels of herrings. The Pigeons require very little training, and soon know where to land with their message. A cote has been fitted up on the roof of Messrs. Moirs' premises at the quay for the accommodation of the birds, and they invariably alight there on their return from sea." Even a non-fancier will, I think, own that the above is a very interesting use to which the Homing or true Carrier Pigeon is being put. Such birds can scarcely be too generally cultivated.—WILTSHIRE RECTOR.

Another writer has observed :—

"The Carrier Pigeon is not only a useful but is a graceful bird. Although he does not show to advantage at exhibitions, yet it has been well said that no bird ever deserved more truly to take prizes than some of those Carriers exhibited during the last few years. There has been a gain in the size and strength; both were lacking a few years since, when the birds shown were too

small and pretty; now it is not so. Whatever doubt there may be as to which variety of fowls should head the prize catalogue (and committees appear to take different views), yet no doubt exists in any Pigeon fancier's mind that the kingly Carrier must always be placed first. Apart from the different points, there is the Carrier look which marks the first-class bird. He looks not a creature of feathers, but like a piece of black marble.

"This useful and stately bird is well represented in the accompanying engraving.

POULTRY FOR PROFIT.

ALTHOUGH both eggs and fowls may enter into calculation, yet precedence must be given to one or the other; and in every case, when poultry is intended to be something more than a recreation and to pay as an investment, it is necessary to know something of the neighbourhood, its wants, and its markets. In some places eggs are most wanted, in others fowls. The knowledge of these things must dictate the breed that is to be kept. The produce of birds may be considered as a certainty if they are properly chosen and judiciously fed; but almost every breed has some peculiar characteristic. Thus, if the establishment were in a neighbourhood where an egg is an egg, and all that is required is a certain number in exchange for a shilling, Hamburgs or Cochins would be the proper birds, especially the former, as they are small consumers of food. If it were a neighbourhood where ladies marketed, and where things are carefully looked at and studied before they are bought; where, after asking the price, they promise to call again, and intend to do so, we should keep Spanish, as the size of their eggs would always command a sale in preference to any others. If fowls were wanted for the table, and good ones were sufficiently appreciated to cause buyers to give a little more for a better bird there, we say keep Dorkings as table fowls. These explanations must of necessity lack interest for the general reader, but they are essential to be considered by those who are looking for profit from their poultry.

We will suppose it is only required to produce eggs. Cochins, Brahmas, or Spanish will do in a small space, and a hundred of either may be kept on an acre of ground. But as neither breed nor age will produce eggs from unhealthy birds, it will be necessary to take every pains to keep them in a satisfactory state. The three breeds we have named bear confinement well, but it will happen that they flag a little at times. Any precaution is then worth adopting. Let us suppose one hundred hens on an acre of ground. It would be well to divide them into four sets, each with a different run, and, above all, a different roosting-place. More than half the disease is got by roosting too closely in small buildings. Most diseases are contagious or infectious, and for this reason the division into four parts offers security which should not be neglected. It will be necessary every year to have young birds, and these must be bred on the premises. Two acres would require to be set apart as rearing-ground for chickens. Houses, yards, &c., would occupy half an acre. Four hundred hens might be kept, then, on six acres and a half in good laying condition. They would have to pay their expenses by their eggs; but as it would be necessary to breed many, and as we advise beginning with pure birds, we believe that every year some chickens might and would be selected which, at exhibitions or by private sale, would make prices that might prove very remunerative. We have here put the smallest possible space on which we think the birds could be kept, and they would unquestionably do better if they had more room.

It will be very difficult to name the quantity of food they will consume; but it should be carefully seen to and none wasted. In nineteen out of twenty of the yards where fowls are kept on a large scale half the food is wasted, and another portion is uselessly expended in trying to make the fowls eat more than they require. The supply of eggs must be kept up during the year, as the largest profit will be made when fewest eggs are laid. Really new-laid eggs in the winter will make 8d. or 4d. each for weeks, and for a long time they will make 1d. each. This last is a remunerating price. We believe it is possible if not easy to make fowls pay by eggs, but only where there is personal superintendence.—B.

BEE-KEEPING PAST, PRESENT, AND FUTURE.

SOME forty years ago the Royal Adelaide steamer from Leith landed me in the streets of London one Sunday morning about ten o'clock. What a big hive with a young queen (for she was young then) was London! I went there to seek work and make my way in the world. On the evening of the day after my arrival I found my way to Clapton and asked Mr. Low if he could assist a poor Scotch gardener just arrived. He sent me at once to Lord Mansfield's gardens near Hampstead, and there I pitched my tent for two years. My knowledge of bees, their management and natural history, was gained in my youthful days in Scotland before I had seen a book on bees. I am now thankful it was so. On a bookstall in London I saw Huber's book on bees and bought

it. It is a well-written book by one who was an enthusiastic lover of bees and an industrious student of their natural history. Unfortunately Huber had lost the use of his eyes, and had in a great measure to depend on his faithful servant and assistant Francis Burmens to carry out his suggested experiments and observations. Huber's book does not treat on practical and profitable management. At the end of two years I went to live near Barnet, where I found some bee-keepers, who were not bee-masters, being ignorant of any and all systems of management. It struck me that the English bee-keepers were in darkness and had made no progress at all from time immemorial. Dr. Bevan's book, "The Honey Bee," had fallen from the press, and was published at 10s. a copy. I bought a copy to see if the doctor was in advance of all around him, but found that his book was a mere reflection of Huber's work on the habits of bees, and contained no evidence of ability to teach the first principles of practical and profitable management. Dr. Bevan had not had experience enough amongst bees to produce an original and enlightening book, and bee-keepers received no healthy impulse from his teaching.

During the next thirty years other bee books appeared, most of which were compilations without influence. At last Dr. Cumming—the great writer on unfulfilled prophecy and "The Times Bee-keeper"—sent out a big book on bees, which to juveniles was a readable work, but not a safe guide to profitable bee-keeping. During the thirty years now noticed bee-keeping in England made little advance, if it moved at all. Everywhere we went we found bees without culture, like a neglected garden.

In Scotland, or some places of Scotland, things were very different. In my native parish and other parishes in Lanarkshire bee-keeping had been in full swing for more than sixty years. My father, who was a common labourer, banked £350 before his marriage, and this, I believe, was mostly realised from bee-keeping. He was the leading spirit there, and probably the most successful bee-keeper in Scotland. His example and success encouraged others to follow in his course. If I look back fifty years I see shoemakers, tailors, grocers, weavers, and labourers who never read a book on bees managing theirs with great and encouraging results; and, moreover, with nothing but straw hives they had gained a comprehensive and accurate knowledge of the habits of bees and the internal workings and economy of hives. Compared to England they were at least fifty years in advance.

The Rev. G. J. Wood, who has written many popular works on natural history, wrote one on bees some years ago. In this book Mr. Wood tells all he can about the anatomy and habits of bees, and then says that someone else must come after him to teach how they are to be managed. This admission of Mr. Wood's is an evidence of his wisdom, and brings to our remembrance the wise remark of an old heathen philosopher, Pathagorus—viz., that "men ought either to be silent or say what is better than silence."

Many teachers have appeared amongst us since Mr. Wood's remark was made. Mr. Woodbury was an able writer, and did much to enlighten the bee-keepers of his time by unfolding the mysteries of bees and stimulating attention generally to the subject of apian science. In the midst of his days he was taken from us. He was an honest and enthusiastic student of bee history, and his pen was that of a ready and accomplished writer.

Mr. George Fox of Kingsbridge, Devonshire, has been a very successful bee-keeper, and has done excellent service by exhibiting his grand supers of honeycomb. We are thankful for what he has done, and hope that he will in coming years go beyond his former examples of successful bee-keeping.

The "RENFREWSHIRE BEE-KEEPER" has done capital service by recommending the Stewarton hive and recording his success with it. The bee-keepers of Ayrshire, particularly about Kilmarnock and Stewarton, have used this hive for many years with considerable success. There I believe the "RENFREWSHIRE BEE-KEEPER" learned how to work and manage it. The results realised by himself on two or three occasions have been extraordinary.

Mr. Abbott of the bar-frame school is, too, doing a good work by exhibiting his ability and expertness in manipulating bees and the contents of their hives. He thus shows the public that bees and frames may be removed from one hive to another with ease and without much risk or danger. Object lessons are always valuable. In the bar-frame school we have now many clever men, from whom I expect great things. Some of them are in the top class, and well merit a certificate of competency and efficiency in the work of teaching others.

Mr. John Hunter and Mr. Frank Cheshire, though comparatively young men, and perhaps young bee-keepers, are very clever men of this school, and accomplished writers. They have already sent out into the world works on bees. Mr. Hunter's is a book chiefly made up by quotations. Mr. Cheshire is a scholarly writer. His book is one of condensed thought embodied in language rather too high for the bee-keepers in the country—it is not a book for the masses. Though both gentlemen appear to me to lack some more practical experience I am pleased to give them a good mark and put them in the top class. They have a brilliant future

before them if they study bees and bee-keeping in their gardens and not in books.

Mr. George Campbell, New Pitsligo, Mr. A. Cockburn and Mr. James Shearer in the Huntley district, all in Aberdeenshire, and many others in Scotland, deserve honourable mention here, for they are most active and successful men with bees in straw hives, and by pen and example they are encouraging the bee-keepers in the north. Mr. Campbell, a veteran bee-keeper, had a hive a few years ago which, with its swarms, reached the great weight of 873 lbs. gross; and one hive of Mr. Shearer's gathered 10 lbs. in one day.

Ever since my arrival in England I saw that a practical treatise on bee-keeping by a practical man was needed, and so far back as 1844 the late Dr. Lindley advised me to write one, and which he said might be published at the office of the *Gardener's Chronicle*. My life for many years afterwards was so eventful and harassing that I abandoned all idea of writing a book. Some small treatises on bees fell from my pen during the next twenty-five years, but they did but little good. My balance sheets of bee-farming which appeared in *The Times* roused more attention. In 1866 I happened to pass through Edinburgh, when Messrs. Blackwood and Sons engaged me there and then to write and prepare for the press "The Handy Book of Bees" by purchasing the copyright. Three years after the bargain was made—in the winter evenings of 1869—I wrote the book and handed the manuscript very early in 1870 to the publishers, and thus fulfilled my engagement. It appeared in print shortly afterwards, and received the approval and commendation of about seventy of our leading newspapers and periodicals. More to my astonishment, perhaps, than to anybody else, its circulation and influence have probably been greater than those of any other book on bees yet published; and for the sake of the public and the publishers I am gratified that so many editions are called for and absorbed, and better still that the work has given light, confidence, and happiness to thousands of its readers, both rich and poor. The weakness of this personal reference will be excused if the reader will bear in mind that I have no personal interest in or profit from the sale of the book.

It was my intention to notice in this letter the Bee-keepers' Association and other matters and movements, but will pass them over and come at once to bee-keeping in the future.

We look forward hopefully to the future. During the last ten years many English bee-keepers have made great progress. Their past success has given them confidence and encouragement. Their knowledge is power. They mean to advance, not by following, but by moving to the front ranks. Nothing but weather can prevent these bee-keepers from succeeding. The models of the past, fine as they certainly are, are not to remain the models of the future. The introduction of artificial comb foundations will give great help and impulse to the practice of supering. By their use I believe we shall have harvests of honeycomb such as have never been known. Swarms in other counties besides Lanark and Aberdeen will sometimes rise in weight to 150 lbs. Light will dispel darkness. Bees in the gardens of the cottage homes of England will be a perennial source of pleasure and comfort to the inmates. Bee-keeping in the future will be an uplifting boon and blessing to hundreds of the homes of the working rural population of this country, sweeping from the brows clouds of sorrow, and from their hearts the pressure of care and poverty. What a satisfaction it is to an honest working man to feel that he is in possession of a power and holds a position to keep the wolf of want from his home!

In the arena at Olympia, near Corinth, in which the celebrated games and races came off in olden times, stood three stone pillars. On the pillar facing the starting-place was written the word "Excel," on the second pillar was the word "Onwards," and on the third stone (turning post) were written these words: "Finish the race;" and around these stones the best blood of Greece competed for the mere honour of victory. To bee-keepers of every school of thought and practice, to men with Stewarton hives, to men with bar-framers and men with straw hives, to men of the mansion and men of the cottage, to men of England, Ireland, and Scotland, and to ladies and gentlemen and all readers of the *Journal of Horticulture*, I cordially recommend the adoption of the Grecian mottoes, "Excel," "Onwards," "Finish the race;" and I wish all a happy and prosperous new year.—A. PERTTIERBW.

OUR LETTER BOX.

MR. R. S. S. WOODGATE (*Exhibitor*).—We cannot give you any information on the subject. Mr. Woodgate does not now belong to our staff.

BRAHMAS AND COCHINS (*Fulham*).—Brahma fowls wander from home more than Cochins, but they are not in the habit of staying away to lay. They may be kept in confinement easily, even in a very small place.

LOSS OF FEATHERS (*D. D.*).—A feather pulled out of the tail of a cock or hen will grow again in a short time. The loss of both sickle feathers would be a great disadvantage to a bird, but it would not be a disqualification.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain.
	Baromet. at 32° and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass		
1877-8. Dec. and Jan.	Inches.	deg.	deg.	N.W.	deg.	deg.	deg.	deg.	deg.	In.	
We. 19	30.595	33.0	33.0	N.W.	40.3	40.0	39.6	39.3	34.6	0.083	
Th. 20	30.683	39.5	38.5	N.E.	40.1	42.0	35.0	45.0	35.6	—	
Fri. 21	30.516	42.0	40.5	W.	40.6	45.0	39.1	47.2	36.7	0.012	
Sat. 22	30.511	45.4	44.5	W.	41.8	46.6	41.7	51.3	40.0	0.050	
Sun. 23	30.080	41.4	38.3	N.W.	43.0	44.2	40.0	70.5	34.0	—	
Mo. 24	29.779	42.1	40.0	W.	41.7	46.5	34.3	50.1	29.8	—	
Tu. 25	29.801	32.8	30.8	W.	40.3	37.8	38.5	37.5	23.8	0.046	
Means	30.352	39.5	38.1		41.1	43.6	36.0	51.1	31.8	0.143	
We. 26	29.335	31.6	31.4	W.	39.0	39.0	38.8	67.0	37.4	—	
Th. 27	29.604	30.4	29.2	N.W.	38.3	38.1	38.8	65.7	34.1	—	
Fri. 28	30.038	29.8	28.6	N.W.	37.6	36.8	28.3	45.0	24.0	0.570	
Sat. 29	29.615	49.2	49.2	W.	37.0	33.2	29.6	64.1	36.4	0.018	
Sun. 30	29.790	48.5	47.8	S.W.	39.1	51.8	45.3	55.4	38.8	0.146	
Mo. 31	30.035	39.8	37.4	N.W.	41.0	51.8	39.2	68.9	34.4	—	
Tu. 1	30.332	33.1	32.9	W.	39.6	43.4	30.3	45.3	24.8	—	
Means	29.890	37.5	36.6		38.8	44.9	32.9	58.5	28.6	0.786	

REMARKS.

19th.—Foggy day, no sun; slight rain in evening.

20th.—Thick fog in morning, clearer afterwards, but no sun.

21st.—Bright in the early morning, dull by 9 A.M., and continued so all day, with damp mist and occasional drizzle.

22nd.—Rather warmer, overcast, and dull; rain at night.

23rd.—Very fine morning and brilliant day, very hot sun.

24th.—Overcast, but no rain; colder at night, with much wind.

25th.—Thick white frost, fine day, snow began about 9 P.M., and during the

night fell to a total depth of about half an inch.

Very high barometer on 26th, from which point it fell steadily to 24th, but with very little rain and scarcely any wind until the night of that day.

Note.—There are two correct readings in the above table which look incorrect. Upon the 19th it is reported to have been colder in the sun than in the shade; that is true, because there was no sun, and there was slight radiation from the sun thermometer. Again, on the 20th it is shown that it was 1.6° hotter on the grass than in the air; this was due to there being no radiation during the night and to the warming of the grass thermometer by the soil being hotter than the air.

26th.—Ground lightly covered with snow in morning; fine, cold, sunny day, and clear at night.

27th.—Clear, bright, cold, day.

28th.—Fine cold morning, dull and rather foggy afternoon; snow began at 5 P.M. and fell heavily during the evening, but rain followed and melted it all.

29th.—Rainy morning, temperature 20° hotter than yesterday, fine at times, but a very damp day.

30th.—Very dull day with rain at times.

31st.—Colder, bright, clear, and fine.

Jan. 1st.—Foggy morning and dull all day; spots of rain in evening.

The first three days cold and bright, afterwards warmer. The total rainfall of 1877 was 28.17 inches, or about 12½ per cent. above the average.

—G. J. SYMONS.

COVENT GARDEN MARKET.—JANUARY 2.

OUR Market is now beginning to look very bare, and with business quite we have scarcely any remark to make. Good late-keeping Apples, such as Blenheim, Wellingtons, and Nobes, are being sought after and will now well repay themselves. Cobs with a short stock on hand are quiet.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½	sieve	2	6 to 5	0	0			
Apricots.....	dozen	0	0	0					
Chestnuts.....	bushel	10	0	20	0				
Currents.....	½	sieve	0	0	0				
Black.....	½	sieve	0	0	0				
Figs.....	dozen	0	0	0					
Elberts.....	½	lb.	0	6	0				
Cobs.....	½	lb.	0	6	0				
Gooseberries.....	½	bushel	0	0	0				
Grapes, hothouse.....	½	lb.	1	6	8				
Lemons.....	½	100	6	0	10	0			
Melons.....	each	0	0	0	0				
Nectarines.....	dozen	0	0	0					
Oranges.....	½	100	3	0	10	0			
Peaches.....	dozen	0	0	0					
Pears, kitchen.....	dozen	1	0	3	0				
Pears, dessert.....	dozen	2	0	9	0				
Pine Apples.....	½	lb.	1	6	5	0			
Plums.....	½	sieve	0	0	0				
Raspberries.....	½	lb.	0	0	0				
Walnuts.....	bushel	5	0	8	0				
ditto.....	½	100	0	0	0				

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	dozen	2	0	4	0				
Beans, Kidney forced.....	½	100	1	0	1				
Beet, Red.....	dozen	1	0	3	0				
Broccoli.....	bundle	0	9	1	6				
Brussels Sprouts.....	½	sieve	2	6	0				
Cabbage.....	dozen	1	0	2	0				
Carrots.....	bunch	0	4	0	6				
Capicums.....	½	100	1	6	2	0			
Cauliflowers.....	dozen	2	0	4	0				
Celery.....	bundle	1	6	2	0				
Coleworts.....	doz.	bunches	2	0	4				
Cucumbers.....	each	1	9	1	6				
Endive.....	dozen	1	0	2	0				
Fennel.....	bunch	0	3	0	0				
Garlic.....	½	lb.	0	6	0				
Herbs.....	bunch	0	2	0	0				
Lettuce.....	dozen	1	0	2	0				
Leeks.....	bunch	0	2	0	4				
Mushrooms.....	pottle	1	6	to 2	0				
Mustard & Cress.....	pinnet	0	2	0	4				
Onions.....	bushel	2	6	3	6				
Pickling.....	quart	0	0	0	0				
Parsley.....	doz.	bunches	2	0	0				
Parsnips.....	dozen	0	0	0	0				
Peas.....	quart	0	0	0	0				
Potatoes.....	bushel	3	6	6	0				
Kidney.....	bushel	5	0	7	0				
Radishes.....	doz.	bunches	1	0	1	6			
Rhubarb.....	bundle	0	6	1	0				
Salsafy.....	bundle	0	0	1	0				
Scorzonera.....	bundle	1	0	0	0				
Seakale.....	basket	3	0	2	6				
Shallots.....	½	lb.	0	3	0	6			
Spinach.....	bushel	2	6	4	0				
Turnips.....	bunch	0	3	0	4				
Veg. Marrows.....	each	0	0	0	0				

WEEKLY CALENDAR.

Day of Month		Day of Week	JANUARY 10—16, 1878.	Average Temperature near London.			Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.	Clock before Sun.	Day of Year.	
				Day.	Night.	Mean.	h.	m.	h.	m.	h.	m.	h.	m.	Days.	m.	s.	
10		TH	Royal Society at 8.30 P.M.	41.7	30.5	36.1	8	5	4	10	10	30	11	57	7	7	51	10
11		F	Queckett (Microscopical) Society at 8 P.M.	41.5	30.6	36.0	8	5	4	12	10	41	morn.	9	8	8	15	11
12		S	Royal Botanic Society at 3.45 P.M.	42.4	30.7	36.5	8	4	4	13	10	55	1	8	9	8	38	12
13		SUN	1 SUNDAY AFTER EPIPHANY.	43.0	32.1	37.5	8	3	4	15	11	13	2	23	10	9	1	13
14		M	Royal Geographical Society at 8.30 P.M.	42.0	29.6	34.8	8	2	4	16	11	37	3	41	11	9	23	14
15		TU	Royal Horticultural Society—Fruit and Floral Com.	41.5	28.9	35.2	8	2	4	18	10	13	4	59	12	9	44	15
16		W	Metecorol. Soc. (Anniversary) 7 P.M. [mittees at 11 A.M.	41.7	30.6	36.2	8	1	4	19	1	5	6	11	13	10	5	16

From observations taken near London during forty-three years, the average day temperature of the week is 42.0°; and its night temperature 30.0°.

CAPE HEATHS.—No. 1.

JANUARY.

I say "Cape Heaths" to distinguish the particular kinds cultivated in the greenhouse from the hardy species which are grown in the open borders, these being natives of Europe; but although indebted to that portion of the African continent known by the name of the Cape of Good Hope for an immense number of very fine species, many of the most exquisitely coloured and most popular kinds now grown are varieties produced at home, the result of cross-breeding. True, *Ericas* in a state of nature are found only in Europe and this particular point of South Africa, although other members of the order have a wide distribution; recently indeed it has been asserted that an English *Erica* has been found growing wild in North America. This, however, may have been introduced by the British settlers; at any rate it is a disputed question, and as we have no means of arriving at a satisfactory conclusion it need not be carried further in this place.

Heaths are generally (and it must be admitted with some truth) considered rather difficult to grow, and this has been scored down as a black mark against them; but the chief point connected with their successful cultivation lies in strict attention to their peculiar requirements. Another black mark against them is that they are slow-growing, and require several years to become large specimens; but although this is in reality true, everyone does not require large specimens, whilst even as young plants the majority of them bloom profusely, and are extremely handsome, and do not so soon as the *Geraniums*, *Fuchsias*, &c., outgrow the bounds, which to those whose space is limited is an item of considerable importance.

Heaths are somewhat liable to die suddenly, and therefore a few young plants should be added to the collection from time to time; but if the plants are judiciously watered and not overpotted, the death-rate will be reduced to the minimum. When the plants show signs of growth any that want more pot-room should be shifted in order that the roots may at once work into the new soil, as we consider this better than repotting periodically. Respecting the propagation of Heaths we shall say nothing, as it will be much cheaper even to the smallest amateur to purchase young plants, say in 60 or 48-sized pots, than to attempt the propagation of them at home, although all who grow a few kinds may always find a pleasant occupation in hybridising and raising new varieties from seed, and it may be that some new and desirable form may reward the operator, whilst worthless kinds should at once be discarded.

In commencing the cultivation of this handsome and showy family of plants we may seasonably give a selection of the best kinds flowering in January.

Erica gracilis.—Of this species there are two varieties, one which commences blooming about October and continues to about the end of the present month is called *E. gracilis autumnalis*, and another, which will soon succeed it, is

called *vernalis*; saving the difference in time of flowering there is little to distinguish them. This kind is very ornamental as young plants grown in 48 or 32-sized pots, when they may be used for table decoration or as window plants, serving to make the more sober ornamental-leaved plants gay by contrast, and thus form a welcome addition to our homes during the dull winter months. It is an erect-growing species, the leaves being smooth, small, and linear. Its flowers are small, reddish-purple in colour, and produced in the greatest profusion upon all the little branches, thus forming long and dense spikes which are very ornamental long before the blooms are really open.

E. hyemalis.—Like the preceding, this belongs to the soft-wooded section, and is extensively grown for table and indoor decoration. At this season it also makes a very effective object grown into a medium-sized specimen, and is invaluable to cut from; for as the plant must be cut-back hard after flowering, it is not detrimental to cut from it when flowers for vases or bouquets are required. The leaves are linear acute, clothed with short hairs, and dark green. The blooms are bell-shaped, and when well exposed to the influence of the air the lower half is deep rosy pink and the mouth white, but when kept in a confined atmosphere they become wholly white, or but slightly tinged with pink at the base. It should be encouraged to grow freely, when the whole length of the dense leafy spikes will be covered with bloom.

E. Willmorei superba is a fine robust-growing soft-wooded Heath, similar in general habit to *hyemalis*, but larger in all its parts. The flowers also resemble the last-named kind, but the bells are much longer. It should be treated in the way recommended for *E. hyemalis*, when it will be found to come into flower just as that kind passes away, and thus form a good succession to it.

E. mutabilis.—This is a perpetual bloomer, we therefore introduce it in the first month. It is a rather slender-growing plant, and seldom well furnished with foliage, but its bright flowers are very attractive; and as the plant really requires constant cutting to keep it down, the blooms may be used with much advantage for bouquets, &c. The leaves are bluntly linear, hairy, and deep green. Flowers produced in terminal umbels, tubular, fiery red in colour. This species delights in a dry and airy atmosphere; in other situations it is very apt to become disfigured with mildew both in summer and winter.—W. H. G.

VINE-BORDER COMPOST—BONES, CHARCOAL, AND WOOD ASHES.

I AM not greatly surprised that Mr. Taylor should have required more explicit information as to the proportions of cow dung and loam that had been recommended by "A KITCHEN GARDENER," and which that cultivator has now repeated in terms which cannot be misunderstood. "Three cartloads of loam, one of cow dung, and one of wood ashes, with a bushel of smashed bones to every cartload of the compost," is the formula submitted by "A KITCHEN GARDENER." In such a compost he intimates that he "has grown as fine Vines as he ever remembers seeing." I will

admit that he has grown excellent Grapes in that compost, still I cannot think it one that should be hastily adopted. I should not hesitate to adopt the mixture recommended provided, and this I hold to be highly important, the loam was of a poor, light, sandy nature, such as prevails in upland districts where sheep will thrive fairly well, but where bullocks cannot be fattened without a liberal allowance of "cake." I have observed that the turf from bullock-fattening pastures will grow Grapes admirably without any admixture whatever; but on chalky uplands, where Trefoil and Daisies preponderate over Buttercups, a manurial addition becomes necessary to the turf to grow good Grapes; they then want dung, just the same as bullocks require "cake" on such feeding-ground.

To add cow dung and wood ashes in the proportions named to loam already "fat" I should not only deem unnecessary, but almost dangerous, especially in wet districts. Loam of the character alluded to is naturally retentive of moisture, as also is cow dung, while wood ashes have a powerful affinity for moisture; therefore such a border for a low-lying district having a heavy rainfall I should consider too moist in its nature and close, even adhesive, for Vines. If the loam was of a decidedly fertile character, and taken from a field or district where the farmers grow six quarters of Wheat per acre, I should exclude cow dung entirely from it, but would retain the wood ashes and bones, reserving the dung for surface-mulching. It is loam of this nature that Mr. Taylor probably has at his command, and which grows such good Grapes with the homeopathic admixture of a bushel of bones to fifteen cartloads of the loam, and he would probably have grown them equally good if the bones had been excluded altogether, for there cannot be much virtue in such an infinitesimal proportion of them. If, on the other hand, the loam was taken from a district where only five quarters of Barley can be grown by the farmers instead of six quarters of Wheat I should consider Mr. Taylor's simple mixture altogether too weak for Vines, and should deem a liberal admixture of cow dung very valuable. Thus the statements of the two cultivators, who rank amongst the best in Britain, which at the first glance appear so antagonistic, become reconcilable.

I know of no term as commonly employed in garden literature so indefinite as "loam." It includes soil of the most poverty-stricken character and soil of the greatest fertility. I have had loam carted for Vine-border making in which it was impossible to grow Grapes satisfactorily without a liberal admixture of manure, and where one-third of decayed cow dung would have been hailed with something of the same satisfaction that a convoy of provisions would have met with at Plevna a month ago; and, on the other hand, I have had loam that did not require a particle of manure mixed with it for growing heavy crops of Grapes. But I have never yet seen loam to which I would not have added bones, wood ashes, and charcoal for Vine-border making. These ingredients not only contain a very large amount of food essential to the Vine, but they have a mechanical value which must never be overlooked in the preparation of composts.

If the Vine is analysed it will be found to contain a considerable quantity of phosphate of lime and a still greater quantity of potash. If bones are burnt a residue remains of three-quarters of their weight of earthy substances, nearly all of which is phosphate of lime; if wood ashes are analysed their chief constituent is found to be potash; therefore the value of those ingredients is established. Ammonia is of course indispensable for the sustenance of the Vine, and no substance in nature has much greater power of absorbing it than charcoal. A lump of charcoal is a storehouse of Vine food, and several lumps in a flower pot and bushels in a Vine border cannot fail to be highly beneficial; yet not more so (but beneficial in a different way) than bones and wood ashes. When Mr. Taylor says that "charcoal is decidedly preferable to wood ashes," it is tantamount to me saying that beef is decidedly preferable to Potatoes: the fact is that both are essential, and cannot properly be placed against each other for purposes of comparison.

But I would not have Mr. Taylor or my readers generally to conclude that my reasoning is solely derived from theory. I know very little about horticultural chemistry, but have endeavoured to become acquainted with some of its rudiments for the purpose of testing them in the laboratory of practice, and I have found after careful experiments that the application of the ingredients named are first-rate aids to Vine culture both in pots and in borders; all of them are "decidedly" good,

but I do not believe there is a better or a best in the trio.—
A NORTHERN GARDENER.

A HORTICULTURAL RETROSPECT—1877.

THE beginning of the new year is a time when most people take a glance backward. There is a balancing of accounts, a taking stock of goods, and in every well-ordered mind a thoughtful looking-back as to our fulfilment of the varied duties which each one has to perform. Well for the happiness of those who can gratefully acknowledge to the Giver of all good that it has been a year of progress. While some, then, are anxiously scanning, after a year of great depression, their ledgers and bank books, I would just like to pass in review the past year as it pertains to horticulture. Others, as Mr. Luckhurst and "WILTSHIRE RECTOR" (to whom a brother's greeting) have done so; let me from my own standpoint do the same. Every little item of personal experience and opinion may add something to the general stock and help us on for the future.

We cannot look back on 1877 as a year marked by any remarkable event in horticulture, by the introduction of any startling novelty or any extraordinary gathering of horticulturists either at home or abroad; no year like that when Lillium auratum first took us captive, or the Great International Exhibition astonished those most *blasé* in horticultural exhibitions. I fail to notice, again, marked increase in taste, although I am convinced that taste does improve, not by leaps, but in a slower, more gradual, and therefore perhaps more satisfactory manner; nor has anything very remarkable in the way of cultivation astonished us. We have seen fine plants shown; but then we always see fine plants, and a few feet more or less, half a dozen more spikes of bloom than we have been in the habit of seeing, make no appreciable difference. We have seen old and practised hands retiring from the arena and their collections dispersed, but there are others to take their place. "*Le Roi est mort; vive le Roi!*" And while we may wonder why the fancy of some people should be directed into the channels they run into—while the florist wonders what on earth a man can see in a whole place full of ugly-looking succulents, and the Cactus-grower wonders why the florist should maunder over his collection of puny Auriculas, each according to his taste is following out that love of beauty (for beauty is manifold) which holds all alike entranced; and so horticulture grows by the varied loves of its votaries.

I have said no great gatherings of horticulturists took place in 1877. There was one which was intended to have been such—Carlisle. Every preparation had been made in the border city for it; its central position (although it seems a difficult thing for us in the far south to consider it central) was well adapted to make it so; but all was marred by the most wretched weather that ever disappointed the hopes of a committee, and I suppose for the future whenever we have to mark an unfavourable day it will be sufficient to say "It is not as bad as Carlisle." With many of the remarks of "WILTSHIRE RECTOR" on flower shows I thoroughly agree. My own observations you were good enough to insert some time ago, and they tend to much the same end—that flower shows do not generally pay, but that nevertheless they will continue to be held. Music is quite a legitimate addition to them, but some of the adjuncts sometimes allowed are, I think, more than questionable. However numerous may be the real lovers of flowers, in any one place they are not sufficient to maintain a society in any degree of efficiency; and therefore we may quite expect that if we make it attractive outsiders will come in to see and be seen, to hear good music, to meet their friends. It would, however, be unfair in looking back on horticultural efforts during the past year not to notice the vigorous attempts that have been made to create or revive an additional interest in some special flowers, notably the Rose, the Auricula, and the Carnation and Picotee.

The formation of the National Rose Society and the holding of its first exhibition mark a distinct departure in the cultivation of that universal favourite. It is true that the show was financially a failure, thereby confirming all that has been said about the support that the general public give to shows; and while the arrangements made for 1878 will ensure freedom from this, they will also tend to make the Society truly a national one. The determination of the Committee to hold two exhibitions, a metropolitan and a provincial one, will enable Rose-growers in all parts of the kingdom to compete; and if the season be a favourable one we may expect, I think, at the Crystal Palace such a Rose show as has never before been held, while we know that our friends at Manchester will

do all they can. Mr. Bruce Findlay is so practised a hand that all that can be done to give it *éclat* will be done, and we hope to surprise the Manchester folks with such a display as they have never seen. The attempted revival of a taste for the Auricle and Carnation and Picotee is due mainly to Mr. E. S. Dodwell, and it came none too soon. I have a list before me of the growers and exhibitors of Auriculas forty years ago in and about London, and it amounts to nearly forty, many of them indeed humble men, but with the same kind of love and energy that distinguished the artisans of Lancashire and Yorkshire; I wish I could see a similar number now. The season was unfavourable for both flowers, and as two bad seasons rarely follow one another we may hope that the gatherings which are already announced may be eminently successful.

And this brings me to notice what a very exceptional season it has been and how thoroughly it has frustrated the skill of even the best cultivators. We sometimes hear people foolishly talk as if the gardener were omnipotent; that no matter what the weather may be he is able to overcome its evil results, and that he can produce his flowers, fruits, and vegetables in the same perfection. The last season has completely shown the fallacy of this. The miserable failure of the fruit crop, especially of wall fruit, was not all; but even in houses, where glass and fire heat make gardeners so much more independent of weather, complaints were made of want of sunlight as affecting both the colour and the flavour of fruits. Then what about the crux of all cruxes, the Potato disease? Notwithstanding Mr. Worthington Smith's brilliant discovery of its resting spores and the proclamation of "salus" as a remedy for it, the disease has rarely been more virulent. Experiments conducted with great care have added nothing to our power of either curing or preventing the disease, and the commonplace method of procedure—planting early and lifting early, is about the only sheet anchor we have.

And now we look on hopefully. The prospect of a more severe winter seems to be vanishing, and it is much to be feared that there will be in some degree a repetition of last season—unseasonable earliness, and then sharp biting frosts to which fruit and flowers will alike succumb; still we may all find some oases in which to rest, something will give us enjoyment, and we must therefore be content with such things as we have.

I shall have as usual something to say on my own personal experience in my own little plot. In the meantime let me give a hearty greeting to all readers of the Journal; may they and their special favourites alike flourish.—D., *Doal*.

APPLES FOR ORCHARDS.

I WAS very pleased to see the name of our old friend Mr. Robson attached to an article on Apple culture in the Journal. I also agree with the remarks that he and "A NORTHERN GARDENER" made as to the Cellini Apple. In the remarks I made on the Apple election I said that it (the election) was of value for the amateur, but not to the same extent for the orchardist. I do not think there is an Apple enters the London market that has such a bad reputation as the Cellini. I endorse entirely the remarks of "A NORTHERN GARDENER," and think he has expressed in his letter the opinions of the consumers in the London markets. For myself I have used nearly all my trees as stocks for grafting other sorts. In considering what varieties should be grown by the orchardist there are two things to be thought of—first, Do you require immediate profit? or secondly, Do you wish to lay down a permanent orchard for the benefit of the next generation, and also to add to the value of the land, which in the case of a larger planter ought, for his own benefit, to belong to himself? In the former case I should recommend Lord Suffield, in the latter the Wellington (Dumelow's Seedling). I still think for the cottage gardener that the Cellini is one of the best, as it will make good wood and bear soon after planting; but I certainly should advise the orchardist to avoid it.

I am not quite certain as to the definition of the word "orchard" in all parts of England; with us in Kent we require a permanent pasture after a few years. In many parts I have seen Apple plantations with cultivated ground beneath, and therefore in the remarks I make about the sorts to be grown I am alluding to sorts fruited on pasture. I do not believe in planting on grass land. The young fibres of the roots do not receive the benefit they ought to do. For about seven or eight years the soil around a young standard tree

requires cultivation. In Kent we carry that to the highest state of perfection by planting in Hop grounds, and as there is nothing that is more highly cultivated than the Hop plant the young tree receives in a secondary degree much of the benefit intended for the Hop. One of the chief modes of cultivation for that plant is the aidjet. This is a five or seven-pronged scarifier, producing two good results—first, it destroys all weeds; and second, it gives a good "crumb," and therefore prevents the drought reaching the roots. After a few years the Hops are grubbed, and Grass seeds sown. The great value of an orchard on grass land as compared to a cultivated one is the saving in labour. In the one case by feeding sheep you reap a double benefit in fattening the sheep and improving the land (of course you must make an allowance for the cost of artificial food); in the other method of orcharding there is the cost of cultivating throughout the whole year, and the value of the produce in under fruit does not repay the deterioration in value that the upper fruit suffers in size and colour from that cause.

I have not yet proved Lord Suffield on large trees; mine are about seven years old, but I should think they would not hang in a wind, and therefore there would be a great loss if not gathered very early. The Beauty of Kent makes a tree faster than any other I know of, and bears well. The Lodington Seedling requires grafting on a free-growing stock, such as the Goff, and will then bear every year. The Minchall Crab is a very free bearer, and usually sells well. One of the most useful Apples for the orchardist is the French Royal (Pomme Royale), as it is a favourite with the consumers in the London markets. Warner's King and Tower of Glamis are also of great value on account of their size and handsome appearance. The Manks Codlin is a free bearer, but does not always command a good price. The Graham, when the tree has attained maturity, bears enormous crops, which find a ready sale in the spring. I have not yet sufficiently proved Cox's Pomona, but quite believe all that has been said in its favour. The Northern Greening, where the soil is suitable, is a free bearer and good for kitchen use. In some parts it grows very blotchy, this year especially so. But I think of all Apples the Wellington is the most profitable when you have a crop; but of course it is not so certain a bearer as Lord Suffield. There are many other kinds I could name, but I think a selection from those I have mentioned would answer for a small orchard of kitchen Apples.

In the dessert list for orchard planting I should prefer the King of the Pippins as producing the greatest money value in a succession of years at an early stage. When in full bearing the Blenheim and Golden Knob would probably pay better, but they would require fourteen or fifteen years before fruiting. Cox's Orange Pippin, of course, everyone would plant. I cannot say at present whether the trees, when they have attained their growth, will be constant bearers, but I am pleased with the appearance of them in their growing state. The yellow Ingestre (called in Kent the Summer Golden Pippin) is also a good bearer. I do not think there is any dessert Apple that fruits more freely than the Starmer Pippin; but unfortunately its merits are not known in the London markets. I have seen it in Covent Garden Market in September. It is not sufficiently attractive in appearance; but in April and May I think it only ranks second to Cox's Orange Pippin and the Ribston. I have a tree that has borne fruit every year for many years, but until I discovered the name some few years it was discarded as being of no value. I think the few sorts I have named, with the addition of Court-Panda-Plat, would be sufficient at first; but I shall be pleased to add a few more if required.—LEWIS A. KILLICK, *Langley*.

ARBUTUS UNEDO IN YORKSHIRE.

AT a distance of four miles from the east coast and at an elevation of 500 feet this very handsome evergreen sub-tree or tree-like shrub is perfectly hardy, but it flowers so late as to have them destroyed, which may, however, be due to the imperfect ripening of the wood quite as much as to the late flowering and cold. At an elevation of about 200 feet above the sea and distant about a mile and a half it fruits very freely and regularly, having shelter from north winds by plantations at a short distance, it having a southern exposure.

Beautiful as are the berries of *A. Unedo* at the dull season they are surpassed by Croome's Scarlet (*Arbutus Unedo* Croomei) and the Scarlet (*A. Unedo* ruber). Excepting near the coast, and there even in high and exposed situations, positions in

front of buildings with a south exposure are necessary for the fruiting of these very desirable evergreens. *A. Andrachne* is very handsome; it has bright orange berries in clusters, which are very ornamental, the tree being remarkable for casting its bark annually, leaving a smooth red trunk. Birds of the thrush tribe have a particular relish for the fruit, which they devour greedily.

I may mention that *Cotoneaster Simmonsii* is loaded with its orange-red berries; the erect form of the bushes and bright berries have a fine effect as seen among the dark monotonous forms of evergreens which usually preponderate in pleasure grounds.—G. ABBEY.

NOTES ON OUR ROSE DOINGS.

BEING at this present time in the south of France I am very interested in getting the home news of the floral and horticultural world in the *Journal of Horticulture*, which is kindly sent me each week from the office; but the very distance has prevented me hitherto from making a few remarks with regard to the letters on Rose shows, Rose judging, National Rose Society, &c. It was a great deprivation to me this year not being well enough to attend the different Rose tournaments, and especially not to be able to join with so many of my old friends in the re-formation of the National Rose Society. I was much interested consequently in the report of the annual meeting held on December 6th, which appeared in the *Journal* of the 13th December, and owing to the remarks of "A. C.," and also of Mr. G. Whitfield of Thirsk, venture to send you a few comments.

First, I think it would be an exceedingly good thing for the Committee or Council of the National Rose Society to draw out some rules for judging, though the practical difficulty in my mind, from what little experience I have had, is not so much as to the rules as to get judges capable of understanding or acting by them when drawn out. At the larger Rose shows where experienced and well-qualified judges are appointed there are seldom many mistakes made. Everyone as a rule is inclined to think favourably of his own stand, and very often thinks his own pets must be better than those placed before him. The general public, too, are not always able to judge of the relative value of large stands of Roses, which were under the eye of the judges perhaps at 10 o'clock, and seen by them between 1 and 2, after three or four hours in a hot tent. Any one who has had experience in judging large collections of seventy-two or forty-eight trebles will know that very often when coming back two or three hours afterwards to scan the awards there seems to be already a difference in the merits of the stands. A judge must not only know the comparative merits of Roses and the points of excellence, but he must be able to make up his mind and give his judgment tolerably quickly. I have known many men who were fond of Roses, and in a general way fair judges, who in difficult cases broke down simply from not liking to decide that A's collection was better than B's, perhaps because they knew by reputation that B oftener carried off the palm. As a general rule, where there are many collections it is easy, to begin with, to cast out (if there are only three or four prizes to be adjudicated) all those that have no chance; then, after taking another cursory view, it is better to select the most likely stands and go through each Rose point by point by giving marks. Usually the larger collections of seventy-two and forty-eight, &c., instead of being more difficult to judge are easier, especially if there are three judges and each judge takes it in turn in each stand (subject to the correction of the others) to give three points for the best, two for the next, cutting out all inferior Roses with no mark at all, and giving one for any Rose not bad enough to cut out, but yet deficient in some of the more standard points of merit, then, in cases of an extra good Rose, give four points. A mere addition sum will in the end generally determine the merit of these larger stands; but where, after the addition is made, two or three stands run very near it is better to pick the stands out, put them close to each other on the stages, or better still (if in a tent pitched on grass) on the grass, and take a general survey from some little distance if possible of the selected stands, and then see if the general view corresponds with the marks given. I know what I am saying now is the mere A B C to many experienced judges, but it is not for them alone I write. I find at many country and local shows gentlemen's and noblemen's gardeners are told off to go through all the cut flowers or all the classes of plants, and are selected haphazard, because the committee perhaps of the flower show

think that because they are gardeners at a great garden they must be good judges. Where this is done I have almost invariably found the judgments to be doubtful, especially as in these smaller shows the judges have to deal with twenty-fours, and twelves, and sixes, where, if there is any real competition, it is far more difficult to decide. I remember once at Tunbridge Wells, where I had to act as judge by myself, having twenty-six stands of twelve singles and twenty-two or twenty-three of twenty-four singles, where in each case at least nine or ten stands had to be gone through carefully.

I cannot quite agree with Mr. T. Moore's standard for judging new plants; nor, again, can one in judging take into consideration the merit of the Rose tree itself. It is very well to select for growing for exhibition purposes those "that have the merit of richness in colour, delicacy, form, size, associated with vigorous habit and free-blooming qualities;" but though judges may from their own personal knowledge and observation of the quality of the Rose know their habits of growth, &c., all they have to do at the time is to choose out of a certain number of stands or collections of Roses those which contain the greatest number of good blooms. There is also something to be said for variety in stands. For instance, I do not like to see too many reds or too many pinks, or too many of any one colour. Many exhibitors, again, will spoil a stand by having perhaps a hobby for Teas or Noisettes, by putting inferior Roses of those kinds in order, as they think, to vary the stands. I am afraid it will be difficult to get any committee or council to agree definitely as to the relative value of form, colour, size, symmetry, freshness, foliage, &c. In my own opinion I venture to say the first requisite is not only form and shape of the flower, but smoothness and form of the petal, and a general symmetry in the manner of opening, either in the reflexing of petals, as in some Roses, or in the high centre and cup-shaped forms of others. All roughness, quartering, uneven colouring, and coarseness, however large or fine the bloom might be otherwise, would be sufficient to deteriorate its value as an exhibition Rose. I am inclined, again, to give a point in favour of a good bloom (even if small) of one that is difficult to exhibit fine blooms of, as Madame Furtado or Mlle. Bonnaire, Marquise de Mortemart, &c. Then, again, coarse Roses such as Paul Neyron, or Baronne Prevost, or Reine d'Angleterre, &c., greatly detract from a stand. With some judges good moss and proper setting-up, heads of Tea Roses well wired to bits of stick, &c., have great weight. I certainly like to see stands well set up, the larger flowers in the background, the more delicate or decided colours separating the reds and pinks, and so on, but too much stress must not be laid upon this; and I am even heretic enough to wish to see nothing but plain, painted boards, not necessarily dull green, but some colour which should show-off the green of the foliage and the whole merit of the truss (as cut from the plant), anything the exhibitor likes to remove being removed, but nothing added. It is not wise, again, to put in Roses such as Jean Chérpin, or Souvenir de Dr. Jamain, or Madame Chirard, or any of these classes of small dark Roses, to make a variety in the stand, any more than it would be to put in bad blooms of Niphetos, or Safrano, or La Boule d'Or, &c., merely because they are Teas. However, I am digressing from Rose judging to Rose exhibiting, and feel I am somewhat bold in giving my opinion as to the merits of the points of a Rose in judging. I do not think it wise to try and draw too precise a line, but am inclined to put form and symmetry 1st; 2nd, smoothness of petal; 3rd, substance of petal; 4th, shape of petal; 5th, size; 6th, colour, especially freshness of colour with true gradations of tints; 7th, foliage; 8th, vigour of growth. Then, again, in a stand of say thirty-six or forty-eight, variety, within due limits, ought to have its merits; but, take it as a whole, "A. C." puts it very well when he says "Whoever has fewest inferior flowers wins," and no variety, produced by Teas, or Noisettes, or other means, will compensate for deficiency in good blooms.

I am glad to see Mr. Whitfield's remarks about the Rose elections. I have taken part in them and been interested in them from the first, and I must say on the whole the result of the election is far superior to any lists usually given by Rose-growers whose advice may be asked. Apparently his soil suits the Briar, and is, most probably, strong with a moist subsoil. I certainly agree with him that both Maréchal Niel and Marie Baumann are well worth growing in the north. I hail Marie Baumann's position in the Rose election list, as I have always thought a perfect bloom of this the most beautiful Rose that can be shown, not excepting even Maréchal Niel; and I cannot, again, understand why Mr. Radclyffe should

condemn Louis Van Houtte as a bad grower and recommend Pierre Notting, or why he should recommend such Roses as Vicomtesse de Vesins, Maxime de la Rocheterie, William Griffiths, Pierre Seletski, Souvenir de la Reine d'Angleterre, Sir Joseph Paxton, &c. If Baronne de Maynard is a Bourbon so must Boule de Neige be; but to my mind they are neither of them Bourbons but Hybrid Perpetuals, with a tendency to the Noisette rather than the Bourbon. Why, again, cut out François Michelon and Emilie Hausburg? I agree with him that Gloire de Dijon is too low, and so perhaps is Maurice Bernardin, but Pierre Notting is as high as an uncertain Rose which generally burns in the sun deserves to be; and Madame C. Joigneaux, though a good garden Rose, will never see the exhibition stands again very often. Mr. Radclyffe may be a good judge of what grows best in his own garden, or what is most vigorous in nurserymen's gardens, but quality is better than quantity, and the opinion of forty-eight rosarians is not to be lightly cast aside. With me, contrary to Mr. Whitfield's experience, the Briar is no good with Marie Baumann or Maréchal Niel, but then my soil is light with sand below, and I shall never grow another standard as long as I grow Roses; and I hope in time that the rage for long sticks with mop heads, grown contrary to all the natural laws of Rose-growing, may die out. Use the seedling Briar or dwarf Briar as stocks where the soil suits; but, except under very particular circumstances, I hope the Briar standards may come to an end. I send these hurried notes as helping to ventilate the subject. If my old friend Canon Hole is Chairman of the Committee to lay down laws for judging Roses I venture to say there will be a good code of rules drawn-up to guide Rose judges.—C. P. P.

ZINC LABELS.

I DO not think that zinc labels because they are zinc do any harm whatever to either Roses or fruit trees. If harm results I believe it is by abrasion, the labels either being too loose, so that they are blown about by the wind, causing friction when the bark is tender; or too tight, and the sap is arrested.

Some years ago I had some fruit trees and Roses from a Belgian nursery, with their numbers stamped on very thin sheet lead, which was in long strips about half an inch wide and coiled round a stem or branch. As the wood increased in size the labels uncoiled to the same extent. The same stems or branches have worn the same labels for ten years, and not in one instance has injury resulted to either fruit tree or Rose. On inquiry at the nursery whence the trees were obtained I was informed that the plan had been adopted for a quarter of a century, and hundreds of thousands of trees had been subjected to this system of labelling and no injury had been known to result from the practice. I have employed zinc labels in the same manner and with the same satisfactory results.

Whether the action of zinc and copper as employed by Mr. Brown (see page 8) is deleterious to trees I am unable to say, but zinc alone when carefully secured round the branches I have found quite innocuous.—AMATEUR.

MARKET APPLES.

I AM sure "A NORTHERN GARDENER" (p. 496) will excuse me if I point out an error into which he has fallen respecting the Duchess of Oldenburgh, or, as we call it, the Russian Apple. He says that my father told him it was a good Apple to travel, and could "hide its bruises" well. There must be some mistake in this, as my father—indeed, any grower of this variety—would know well that such is not the case; on the contrary, although a fine summer Apple of excellent quality for culinary purposes and a very good bearer, I should say it is the most tender-skinned Apple grown. So much is this the case that on wet days we never pull Russians, or they would be ruined completely. Even with the most careful gathering it shows every finger mark. It has, however, this good quality—that if stored away in the hampers for four or five days the marks will almost entirely disappear; you can then take them to market, where they will invariably make more money than any other Apple at that season of the year. The people who find Russian Apple a bad sort are those who gather their fruit, put them down on a floor or elsewhere, again put them into hampers, and take them to market. When treated in such a manner it is by no means a good selling Apple.

I cannot say much about the Cellini, for although we sell hundreds of it as young trees, it is not a variety which we

grow in the orchards. I am surprised that "A NORTHERN GARDENER" does not mention Northern Greening, which is one of the best market Apples we possess; a fair size, good bearer, and second only to Normanton Wonder as a late cooking Apple, in use from December to April. Barton Free Bearer is also a market Apple which is worthy of mention; although of perhaps second quality as regards flavour, it is a variety which always bears. We have fruit-gatherers who have worked with us for over twenty years, and who never remember "Bartons," as they call them, failing. Of course they bear more some years than they do others, at the same time they are never a total failure.

I quite agree with your correspondent's remarks as to Beauty of Kent, Normanton Wonder, Warner's King, &c., but, with the exception of Normanton Wonder, how can they be compared as market Apples with our old friend Keswick Codlin? I do not speak of their respective quality in an eating or cooking sense, but of their value per acre as market Apples.—ALFRED H. PEARSON, *Chilwell, Notts.*

VEGETABLE CULTURE.

CHAP. II.—THE POTATO.

PREPARING THE GROUND.—The Potato is one of the most accommodating of vegetables. Of course in a soil entirely suitable to it is the most productive, but it will produce a fair crop in ground that would hardly bring any other vegetable crop to maturity. A heavy wet soil is the most unfavourable for Potato culture, for in such soil they not only fail to attain a good size, but as a rule they partake of the soapy character of the ground, and disease is always most prevalent in wet soils. A too dry soil should also be avoided, at least if it is at all poor. We always obtain much the finest crops from a well-drained friable soil, which does not hold superfluous water nor become quickly parched in dry weather. Either of these extremes is most injurious to the crop. Wet lodging about the roots soon generates disease, and excessive dryness causes the tubers to ripen small and prematurely. Careful selection of soil and situation has more influence in preventing or modifying disease than any remedy which can be applied during their growth. I am aware that some who imagine they can stop the Potato disease will not agree with me in this; but I do not write for argument, on the contrary, I merely state convictions gathered from extensive and successful practice. The most plausible theory will not stand against this.

It is always advantageous to trench-up the vegetable quarters to the depth of 2 feet or 30 inches every four or five years. Where the subsoil is the least inclined to be clay some of this will be brought up to the surface in trenching. Few small seeds can be profitably grown in this for the first year until it has been pulverised or opened-up into free working order. The Potato is the best of all crops to plant to accomplish this. It may also be planted after any kind of vegetable. It may further be planted annually for many years on the same piece of ground. Most of our south and other borders round the walls are planted with Potatoes every spring, and when the ground is cleared of them other vegetables, such as Turnips, Spinach, Lettuce, Endive, &c., for use in winter, take their place. In the large kitchen-garden quarters they are hardly ever grown in the same place two years running; but in small gardens, where it would be difficult changing their position annually, the crop will suffer little by being grown on the same piece of ground for many years together. Ground on which Potatoes are to be planted which has previously contained other crops should have manure spread over the surface and the seed put in as the ground is turned over. I may remark here that heavy cow manure is not the best for Potatoes, unless the ground or soil is exceptionally light. Decayed leaves mixed with light straw and horse dung in a decayed state grow fine clean tubers. In heavy soil wood or house ashes mixed with the manure is beneficial.

VARIETIES.—As may be seen from the now popular Potato shows there are hundreds of varieties of the Potato in cultivation in this country; but, unless where they are grown for the mere sake of variety, a few really good sorts will give as much satisfaction as hundreds. At one time we grew many more sorts than we do now; but we have reduced them to the following, which possess every good quality desired in Potatoes:—

Early Varieties.—Myatt's Prolific Ashleaf (Rivers's Royal Ashleaf), Mona's Pride, Early Fortyfold, and Fenn's Early Market.

Second Earlies.—Gloucestershire Kidney, Lapstone, and Dal-mahoy.

Late Sorts.—York Regent, Sutton's Red-skinned Flourball, Paterson's Victoria, and King of the Flukes.

Most of the American varieties are very prolific, but as a rule they are deficient in flavour. By this I mean they seldom cook "mealy," but at the same time they are not by any means unfit for food. In small gardens where the most must be taken from a small piece of ground, and in poor men's gardens where quantity is as desirable as quality, the American sorts should be cultivated exclusively. Snowflake, Bresee's King of the Earlies, Early Rose, Eureka, and Late Rose are the best of them. They have all a wonderful disease-resisting character.

PREPARING THE SETS.—Various opinions are entertained respecting the best kind of sets for planting. Some prefer planting smallish Potatoes whole, others believe in cutting them up. Good crops may be secured from both. When seed is scarce each tuber may be cut up into as many sets as it has good eyes. A large Potato may often be cut into five or six sets. Where the seed is plentiful it is best to leave two eyes to each set. Small roots about the size of pigeons' eggs may be planted whole. Kidney varieties do not bear cutting-up so well as round sorts.

When Potatoes are stored in heaps in autumn the earliest sorts soon begin sprouting, and if they are not watched the shoots will become very long. This weakens the tuber and injures it very much for planting. Potatoes for planting should be turned over every three weeks during the time they are stored to prevent the long growths appearing. About a month before they are wanted for planting spread them out thinly in a cool dry place where frost cannot reach them. They will grow there, but the shoots made will be short, strong, and hardy—just the sort which will not perish when planted in the ground. In cutting the tubers do not injure one of these growths, as they are of considerable advantage. Tubers so prepared grow much faster than dormant sets.

PLANTING.—In favourable localities Potatoes may be planted from the beginning of February until the end of March. Where late spring frosts are prevalent no tubers should be planted until the middle of March, and from then on to the middle of April. Early planting is best when it can be done with safety, as it gives the tubers a better chance of becoming matured before the autumn rains set in than when planted late. Early varieties, too, have an advantage over late sorts in this respect; our early kidneys planted in February and lifted in July always escape the disease more than later sorts. The ground should not be saturated with wet when planting is done. Some dig the ground all over first and then insert the sets with a dibble; but by this plan I fancy the seed is too much confined at first. An opening should be taken out at one end of a piece of ground, and as it is turned over form the rows as each distance is reached. The distance between the rows and sets should be regulated by the vigour of the variety. Strong-growing kinds require more space than those which produce short haulms. The strongest-growing sorts should be planted 30 inches between the rows and 12 inches between the sets. Weaker kinds, such as Rivers's Royal Ashleaf Kidney and King of the Earlies, do very well with 20 inches between the rows and 6 or 8 inches between the sets. From 4 to 6 inches is a good depth to cover the sets under the surface.

GENERAL CULTURE.—When planting is finished the general requirements of the Potato throughout the growing season are very few. Do not disturb the surface of the ground until the growths are well up and the rows can be distinctly seen, then take a Dutch hoe and break the surface thoroughly. This will be all they will require until the stems are 6 or 8 inches high. Break the surface again between the rows with the Dutch hoe. When this has been done, a draw hoe should be taken and a good quantity of the soil drawn to the stems with it. This earthing-up supports the young stems, and when the tubers swell it generally prevents them from being exposed on the surface. In exposed situations a little earth may be drawn to the stems as soon as they are a few inches above the ground, and the operation may be completed when they have advanced a little in growth. After earthing-up, the ground may be run through again with the Dutch hoe to break the surface if it is crusty and destroy the weeds. When the stems have met in the rows, however, it is only necessary to pull out with the hand large weeds before they seed.

Lifting and Storing the Crop.—Perhaps there are more diversity of opinions as to when Potatoes should be taken out of the ground than on any other matter connected with their

cultivation. Some recommend lifting them as soon as the haulms show signs of disease, others after the stems have wholly died down. Both may be correct under certain circumstances; but all matters considered, when the tubers have to be kept for a considerable time for seed or other purposes, it is best to allow them to remain in the ground until the haulms have turned yellow and are drooping with maturity; then the roots both eat well and keep well. Like all other operations connected with their culture, they should only be lifted from the ground when the soil is dry and will not adhere to them; this is important to their subsequent keeping. When lifted for immediate use this is of no importance. As soon as they are lifted they should be placed in an open shed or some other place where there will be no danger of rain falling on them. As each sort is taken under cover spread them out thinly and let them remain for a few days until they have become perfectly dry, then go over them and pick out every one showing the least sign of disease. The very smallest may be taken out at the same time. The good tubers then left should again be spread out for a few days to dry them thoroughly before storing.

The best place for storing them in is a dark shed or cellar, but the former is the best. The temperature of the place should not fall below 35° or rise above 45°. They may be laid together in heaps 2 or 3 feet deep, but where there is plenty of space they may be spread thinner. After storing they should be turned over once every three weeks or a month, and any showing indication of disease be removed. Our Potato shed has no windows, but a few holes in the walls for ventilation. These are opened during fine days to admit fresh air and let out any moisture that may have collected in the atmosphere. Where there are windows in the shed they should have shutters to exclude the light, and they may be opened occasionally to sweeten the air inside. We stored our Potatoes in ridges in the open air at one time and covered them with straw and earth, but this we have discontinued, as we find the shed much more convenient.

INSECTS AND DISEASES.—Excepting the famous Colorado beetle, which we have only seen on paper, there are few or no insects which do serious harm to the Potato stems or leaves. The curl is often injurious. When affected by this the stems and leaves curl and shrivel-up, and growth is stopped both at top and bottom. Very dry weather sometimes causes it, and an over-abundance of manure seems to promote it. Excessively rich or extremely poor soil also appears to favour the spread of scab or ulcers, which appear on the surface of the tubers. This sometimes disfigures the tubers very much, but when peeled the centre is quite good for food. The Potato disease, which annually proves so disastrous, is too well known to require any explanation. As previously stated, every means tried hitherto to prevent it has failed. Avoid planting in heavy wet soil; plant early and lift early, and changing the seed frequently, are a few of the best practical means that can be adopted to modify it.—A KITCHEN GARDENER.

MILDEW ON ROSES.

"AN OLD ROSE-GROWER" states that he is open to correction in recommending that water should not be given to Roses, especially after a hot day, as it induces mildew. So far from correcting him I strongly endorse his statement. Mildew with me has always commenced in a hot south border with the most vigorous Rose, John Hopper, whence it gradually spread. In 1875 I watered freely the Roses in the border just when they appeared to want it most—viz., after a hot day. They suffered immediately from mildew, and did not recover that season. The more I watered the worse they became. In 1876 I mulched heavily with manure and gave no water; no mildew whatever appeared. This year, having no manure to spare, I watered moderately till mildew appeared; I then withheld, until the plants recovered entirely from the pest and bloomed well in the autumn.

I am far from saying that this is the only cause of mildew, which I believe results immediately from a checked root-action acting on a vigorous condition of foliage. Heat and dryness of the root will induce it; but I am certain that cold water applied to warm roots, however thirsty they may be, is the surest way to aggravate the evil, which becomes worse in proportion as the foliage is luxuriant. In case of drought, or rather to anticipate the drought, which is sure more or less to come, mulch heavily with manure, but never water. If the unsightliness is objected to cover with cocoa-nut fibre or a

sprinkling of earth, but do not dig it in. You will then, I think, escape mildew, at least I have done so.—A. JOHNSON, M.A., F.L.S.

ORCHIDS IN JANUARY.

AT this dull season of the year, when the more common flowering plants are few, and the Chrysanthemum, the queen of winter flowers, is fast fading, the Orchid house affords a "feast of beauty." Plants that are now in flower or showing flower in many collections are the following:—*Angraecum eburneum* and its varieties are now expanding their large ivory-white flowers, also *A. sesquipedale*, which I think are the two best species to represent this genus. They should have a fair supply of water at the roots now they are in flower; in fact, they should have had a good supply from the time the spikes were visible. *Ansellia africana* is now making a grand display; it flowers from the extreme point of the pseudobulb, showing its yellow flowers with chocolate markings well above the foliage. This should be grown in company with the *Vandas* and *Aërides*. It delights in peat and sphagnum with a little fibry loam. Plenty of water should be given at the roots when growing. After it has completed its growth it will be greatly benefited by removing it to the Cattleya house for a time and watering it very sparingly to prevent its starting into growth prematurely. *Cypripedium insigne* and *insigne* *Maulei* are now in one mass of bloom; they have been in flower with us for about six weeks, and continue in good condition for some little time. *C. barbatum*, *pardinum*, *venustum*, *Roezli*, *Sedeni*, *Harrisianum*, *Dominianum*, and *longifolium* are scarcely ever out of flower. The last-named species are kept regularly supplied with water at all seasons.

Cymbidium eburneum has been in flower for two or three weeks. This when well grown is really one of the best species in cultivation. *C. sinense* and *C. pendulum* are also in bloom. The two latter are thought but little of at the present time, owing, no doubt, to their being so shy in flowering. *Dendrobiums* of the noble section will now be fast coming into flower. Where these are grown in quantity and with a little skilful management a grand display may be kept up for a considerable time. Our plants of *D. nobile*, that finished their growth early and were subjected to a good roasting on shelves well exposed to the sun's rays during August and September, are now fast opening their flowers; the second batch should be kept comparatively dry and cool. By introducing one or two plants at intervals into the East India house a good succession of flowers may be kept up for a long time. If grown in baskets I find it a good plan to give them a pretty good soaking with water, and to damp the stems once or twice a-day till the flowers are at the point of opening; but plants grown either in baskets or pots should not be allowed to be saturated with moisture, which would cause them to start into growth prematurely. Following on in succession are *D. Pierardi*, *heterocarpum*, *primulinum*, *crassinode*, *Wardianum*, *Devonianum*, *japonicum*, &c.

Dendrochilum glumaceum should now have special attention. This should be brought out of the Cattleya house, potted if necessary, and placed near the glass in the East India house, as it will now be throwing up its pseudobulbs in quantity. When it has fairly started into growth it should receive a liberal supply of water, as it makes roots and flowers with the young bulbs. I find it thrives admirably if potted in fibry peat, chopped sphagnum, and good fibry loam, with an admixture of broken charcoal or crocks to keep the soil open. *Laelia autumnalis* has also been in flower for some considerable time, and must be allowed to rank amongst one of the best and most useful species of that lovely genus. The flowers are extremely useful for bouquet-making, also for mixing with other flowers for filling vases for dinner-table decoration. *L. anceps* will be in flower in the course of two or three weeks, also *L. superbiens* with its flower-spikes from 4 to 5 feet long. The last-named species is scarcely worth growing unless anyone is in possession of a good variety.

Lyostea Skinneri has been very attractive for six or eight weeks past, and should find a place in every collection; even the poorest varieties are really beautiful. *L. linguella* will very shortly be in flower, and should receive a liberal supply of water, as it makes roots and sends up its flower stems at the same time. I have seen this species produce thirteen and fourteen flowers from strong pseudobulbs. The flowers are shining and of an ivory-white colour.

Where even small collections of *Maedevallias* are grown there is scarcely a time of the year but what some will be in

flower. *M. Veitohiana* and *M. Harryana* are perhaps the best two species of the genus, though *M. tovarensis* is a great favourite, showing its flowers, which are as white as snow, well above the dark green foliage. The last-named species has only found its way into a few collections, doubtless owing to the great price it realises, there being only a small stock at present in the country. It was first discovered in Tovar, British Columbia, hence its name. *M. polysticta* and *M. melanopus* are two little gems, wonderfully free-flowering, beautifully scented, and lasting a long time in flower. *M. ionocharis*, *Davisi*, *amabilis ignea*, *Peristeria*, *nycterina*, *psitticina*, and *Lindeni* are all well worth growing. All the species are very easily cultivated. The main points of attention in growing *Maedevallias* are:—First, to keep them growing in a sweet mixture of fibry peat and sphagnum, with some fine broken charcoal mixed with it; secondly, to keep them cool; thirdly, to keep them well supplied with water when growing—in fact, they should never be allowed to become dry.

Now is a good time for *Odontoglossums*, as there are many good species in flower. For example—*O. Alexandrae* in variety, *bictonense*, *cariniferum*, *cirrhosum*, *clariceps*, *cordatum*, *crocidipterum*, *constrictum*, *cristatum*, *Ehrenbergii*, *epidendroides*, *gloriosum*, *grande*, *Hallii*, *hastilabium*, *Inslayi*, *Lindleyanum*, *luteo-purpureum*, *lavæ*, *Pescatorei*, *pulchellum*, *Rossii*, *triumphans*, and *Uro-Skinneri*.

*Oncidium*s in flower are *O. Barkeri*, *bracteatum*, *cheiroporum*, *crispum* in varieties, *cuscutatum*, *grandiflorum*, *excavatum*, *flexuosum*, *luridum*, *ornithorhynchum*, *papilio*, *pubes*, *sarcodes*, *sphacelatum*, *serratum*, *suave*, *Schlumi*, *reflexum*, and *triquetrum*. The last-named species is never out of flower, and is greatly used for making button-hole bouquets. *Phajus grandifolius* is now sending up its flower spikes in quantity, the earliest of which will shortly be in flower. This is a very useful species for decorative purposes.

We next come to that most lovely of all Orchids, *Phalænopsis Schilleriana*, commonly termed the queen of Orchids, and it is well worthy of the name. Strong healthy plants of *P. Schilleriana* are now throwing up their long branched spikes of flowers, and will come in at a good time for cutting. *P. amabilis* and *P. grandiflora* are also showing signs for a good supply of flowers. Last on the list, but not the least, comes our old friend *Zygopetalum Mackayi*, which has been in beauty for some five or six weeks past. I know of no other Orchid that is more accommodating than this, for I find it grows equally well either in the East India house, Cattleya house, or *Odontoglossum* house.—W. G.

DECEMBER FLOWERS—CAMELLIAS, AZALEAS, AND ROSES.

I AM very glad that I went to Veitch's in December, since I have afforded pleasure to a cultivator of Mr. David Thomson's high standing. Mr. Thomson has shown his appreciation in a very practical manner, by not only noticing a weak point in December decorations, but by pointing out a remedy.

When I alluded to the absence of flowers of Camellias and Azaleas during the depth of winter I had in my mind the fact that I was referring to a period before which those valuable flowers are usually in beauty. At Veitch's they were not "in," and in nine-tenths of private gardens those plants are not seen in good condition until the "turn of the year."

In the case of Camellias I have fully proved the certainty of their flowering in December by habitually starting them into growth early in the spring, and I have found the value of such a practice. I have also, but to a more limited extent, found that Azaleas may also be had in beauty at Christmas. I have had the valuable old *A. amena* "in" at that time, also the *A. indica* varieties *Gloire de Belgique* and *A. Borsig*, and I now thank Mr. Thomson for naming others that he has found amenable for Christmas decoration.

I saw some charming Roses in Covent Garden at Christmas. Will Mr. Thomson or others who may have had experience in flowering Roses at that time oblige by describing their practice, naming also the best varieties to commence with? I suspect they are as easily produced as Camellias and Azaleas, and where is the flower-loving family who would not welcome Roses at Christmas?—A COUNTRYMAN.

ADIANTUM PALMATUM.

PROBABLY no Fern more quickly established its popularity than the beautiful and now familiar *Adiantum farleyense*.

That, however, is a stove Fern, and is consequently beyond the conveniences of many lovers of these elegant plants. The Maidenhair now figured bears a general resemblance to the fine species alluded to, and has already received the popular

appellation of the "greenhouse farleyense." *A. palmatum* is, however, very distinct from *A. farleyense*—distinct by its dwarfer growth, more finely divided pinnæ, and its different tint of green. It is a Fern of great elegance, and will doubt-



FIG. 6.—ADIANTUM PALMATUM

less thrive in an intermediate house or close warm greenhouse, and will thus be within the means of many cultivators who do not possess highly heated structures. It was, says Mr. B. S. Williams, to whom we are indebted for its introduction, discovered by M. Roezl in Peru at an altitude of 10,000 to 11,000 feet. In "The Gardeners' Year Book" recently published it is described as "a handsome species, allied to *A. speciosum*. Fronds scrambling, elongate, narrowed to apex, laxly tripinnate; pinnules stalked, varying from obovate-cuneate to semi-orbicular, 1-1½ inch broad, palmately cleft half way

down; sori oblong, situate on the tips of the segments; stipes and rachis smooth, dark brown." That description, with the accompanying illustration, will enable a correct idea being formed of the appearance of a Maidenhair which is likely to become popular.

LÆLIA FURFURACEA.

LÆLIA AUTUMNALIS is now finely in flower in some of the London nurseries, and it may therefore be opportune to notice

L. furfuracea—a rare and nearly allied kind—first because of its intrinsic beauty, and then to indicate how these accepted species differ. There is no ground on which to found a specific distinction, they are really forms of one type. It is just an example of those frequently occurring cases where a difference of slight botanical consequence is of great horticultural importance. Here we have two forms of equal beauty, one of which, *L. furfuracea*, is cultivated with difficulty, wanting the freer growth and to a great extent the exquisite perfume of

L. autumnalis, which of course is the most valuable for cultivation.

Before us we have a flower of *L. autumnalis*, which, compared with the *L. furfuracea*, has shorter sepals, and the petals are less rhomboidal and not undulated. They are scarcely at all oblique, and may be described as ovate-acute, thus having less width above the middle; the sinuses which form the labellum into three lobes are also deeper. This has several flowers on a stem, in contrast to which the stems of *L. fur-*



Fig 6.—*LÆLIA FURFURACEA*.

furfuracea appear always to be one-flowered; it has also narrower leaves. Comparative description without a suite of specimens is often misleading, we therefore recommend attention to the number of flowers on the stem. We suspect a range of varieties uniting the two by imperceptible gradations, wherein also are some having the several forms of each organ which compose the flower in different combination. This view is strengthened by the figure of *L. autumnalis* in the "Botanical Magazine" of 1840, which seems different from any we know of now. Both were figured in the same year with also *L. anceps*, an allied but distinct species. All were from the collection of the Duke of Bedford at Woburn Abbey, where they were received from Mexico. Lindley mentions the "black mealy glands" on the ovary as a distinguishing point of *L. furfuracea*,

but these we find also on *L. autumnalis*. The pseudobulbs of the latter are described as ovate, in contrast to the oblong-lanceolate form belonging to *L. furfuracea*. This cannot always obtain, for our plant has been carefully determined and the pseudobulbs are distinctly ovate. The continuity of nature is rarely better seen than among Orchids, and the definition of a species is clearly arbitrary. There is a plant in flower at Kew, received from M. Roelz; the lateral incurving lobes of the labellum are pure white and the middle lobe a deep magenta, as are also the sepals and petals, shading below to nearly white. The colour is of great purity, and the petals have a crystalline appearance we do not find in flowers of *L. autumnalis*. It may receive the same treatment as for this plant, and having in view a collection rather than selection, is well

worth attention and trouble. Though considered difficult of cultivation and shy of blooming, it has been grown luxuriantly, flowering well every year.

SHADING—KEEPING GRAPES.

HAVING referred on page 3 to the matter of shading Camellias it may perhaps be well to allude briefly to the subject of shading generally. The shading of plants, &c., under glass varies according to circumstances.

Shading is much more necessary in some places than others, and is required most of all in wet dull climates. For instance, I have been obliged to shade things more in a few years in Dumfriesshire than I did in all my former practice, and the reason is that here we have longer spells of moist sunless weather, frequently succeeded by a time of brilliant sun; and growths made by Pines, Melons, Camellias, and even Vines during the sunless time are so tender and immature that, if not shaded for a time, when overtaken with a time of brilliant sun they would simply be ruined. So much is this the case that I am preparing a tiffany shade for the Muscat vine, so difficult is it to preserve the foliage made in our dull climate when overtaken with sun. These same conditions necessitate very different practice as to supplies of water and temperatures compared to what has been my practice under brighter skies, hence it is obvious how ridiculous it is to prescribe the same practice for very different localities.

While speaking of Vines there is one circumstance that puzzles me much, and that is the keeping qualities of Grapes ripened under the circumstances of wet and cloud indicated above. We seldom ever lose a berry here (even at the most critical period of the fall of the leaf) from damping-off; certainly not one berry for ten that I have seen decay in the much more bracing clear air of Haddingtonshire, where Grapes were ripened under very much more sunshine. This is the more remarkable from the fact that the gardens here are situated in a valley surrounded with dense woods with a rainfall in November and December alone not unfrequently exceeding 20 inches. Last December gave us 10½ inches, and the total rainfall during the year 1877 was 67½ inches. The Vine borders are not covered, and scarcely ever a berry has to be cut out of a bunch of Grapes, and yet even ordinary precaution is not practised, because it is not found necessary. A correspondent on page 7 suggests that Muscat of Alexandria is not to be relied on after the end of the year. I have known it good in the middle of March, and if well ripened few Grapes keep so well.—D. THOMSON, *Drumlanrig Gardens*.

HOME-GROWN TUBEROSES.

I WAS not aware that home-grown Tuberoses were almost unknown in this country till I read some communications on the subject in the pages of a contemporary. Allow me now to inform your readers that Tuberoses can be grown as easily as an *Amaryllis* or *Eucharis*, and what is more, they can be grown so as to produce flower stems stronger than the imported bulbs and to flower at a time when those imported almost refuse to do so.

The imported bulbs are received in December or January, when they are at once potted singly in 6-inch pots and plunged where they can have the benefit of bottom heat to start them into growth. After they once start fairly they can be grown in a lower temperature and without bottom heat; and when all danger of frost is over, if they are not wanted to flower early, they can be placed in a deep cold pit and be merely protected from the worst of the weather till the flowers commence opening, when they will be improved by being taken into the greenhouse. Plants so treated will generally flower some time between July and October.

After flowering most people throw them away as useless. This is quite a mistake, as I will endeavour to prove. Mine are at once shifted into 7 or 8-inch pots without disturbing the ball, using a good rich compost consisting of turfy loam with a little decayed manure, a few half-inch bones, and a little charcoal. They are again placed in a warm house and soon commence throwing up shoots, one of which only is left to grow, and it soon forms a new bulb on the top of the old one, which will not fail in its turn to send up a good strong flower stem.

I have no doubt that the small shoots which are taken off would, if liberally grown, soon make good plants. I have already grown some of them this way, and was not aware

that it was an uncommon thing to do, but I have kept no notes concerning the time it takes, yet I am under the impression that some of them flower again during the following winter. I have several in flower at the present time. One stem a few days ago had seven fully expanded pipes at once, and although I cannot yet say that I have had them every week in the year, I do not consider it would be at all a difficult matter if a sufficient number were grown, for it appears to me that they throw up a flower stem whenever the bulb and roots get sufficiently strong, independent of the time of year.

The double variety called the American has been mostly grown, but the Italian one does equally as well under the same treatment, and I almost think I like the Italian one best.

They are never dried off, and this is probably the reason they come stronger than the imported bulbs.—W. TAYLOR.

NOTES AND GLEANINGS.

DURING the year 1877 Messrs. JAMES VEITCH & SONS of the Royal Exotic Nursery, Chelsea, were awarded at the various meetings of the Royal Horticultural Society thirty-eight certificates (thirty-four being first-class) for new plants, two first-class for new vegetables, and two second-class for new plants. They also received from the same Society in the same period two botanical certificates, one cultural certificate, and two botanical commendations. This is the largest number of certificates, we believe, that has ever been awarded by the Society in a single year to one firm. Messrs. J. Veitch & Sons also received from the Royal Botanic Society in the season of 1877 thirty-three certificates of merit for new plants, twenty-seven of which were botanical and six floricultural.

THE Committee of the HORTICULTURAL CLUB announce that they have been enabled to make arrangements, which they believe will greatly conduce to the comfort of the members and the well-being of the Club, as they have entered into an agreement with the well-known Temple Club, Arundel Street, Strand, which secures to their members the advantage of all the resources of that establishment. An inaugural dinner will take place at the new Club House on Tuesday, January 15th, at six o'clock.

IN addition to the GARDEN PILFERING mentioned last week we are informed that some Briars were recently stolen from one portion of the grounds of a suburban nurseryman, and actually sold to another branch of the same firm before even the robbery had been detected. This is about as flagrant an instance of roguish impudence as has ever come under our notice. It behoves nurserymen to be careful from whom they purchase, since the new "trade" appears to be in active operation. The theft of Briars alluded to last week occurred in Mr. Ware's not Mr. Hale's nursery.

"A GROWER OF FORTY VARIETIES" recommends the following as useful LATE-FLOWERING CHRYSANTHEMUMS:—Her Majesty, Mount Etna, Mrs. Halliburton, Oliver Cromwell, Grandiflorum (Japanese), and Lady Slade; and of Pompons, St. Justia, Florence, Mr. Astie, Aigle d'Or, and Dick Turpin. "J. P." also sends the following as useful varieties. Of large-flowering—Nonpareil, Lord Ranelagh, Yellow King, Pink Perfection, Princess Teck, Sir Stafford Carey, Virginal, a very late Anemone-flowering variety, probably the latest of all. Pompons—Aurea, Mdile. Marthé, Bob, and Calliope. Of Japanese Chromatella is the latest; while The Damio, Dr. Masters, James Salter, and Fair Maid of Guernsey have bloomed late this year.

LEICESTERSHIRE FLORA.—The natural history section of the Leicester Literary and Philosophical Society is engaged in verifying and bringing up to date the MS. of the Flora of Leicestershire, left by the Rev. W. H. Coleman of Ashby about twenty-five years ago. Any botanist in the outlying districts of the county will be rendering useful assistance by sending lists of plants observed to the President of the section at the Town Museum, Leicester.—(*Midland Naturalist*.)

FROM letters we have received respecting large ARAUCARIAS we gather that the finest tree in England is the splendid specimen at Dropmore, which exceeds 60 feet in height and is about fifty years old. There are also very fine examples at Messrs. Mitchell's nurseries at Piltown, also in the Great Berkhamstead nurseries of Messrs. Lane. Seed has been ripened and seedlings raised in those nurseries, also at Strathfieldsaye (the Duke of Wellington's), Warfield (Lord Ormawatha's), and at Bicton (Lady Rolfe's), where very fine trees may be seen. The trees are generally diocious, but at Bicton

and at Castle Martyr (Earl of Shannon's) both male and female catkins have been produced on the same trees. Seeds have been ripened in Scotland at Castle Wigg, Wigtonshire, but the finest tree in Scotland is, we think, at Keir (Sir W. Stirling Maxwell's); it exceeds 50 feet in height. The largest tree that we have heard of in Ireland is at Woodstock. It was planted by Col. Tighe fifty years ago, and exceeds 50 feet in height. There is also a very fine specimen in Mr. Boyd's garden at Ballymacool, Co. Donegal. The largest tree we have heard of in the Isle of Wight is in Miss Johnson's gardens at Willow Bank, St. John's, Ryde. We should be glad to hear the exact heights of those trees and of other noteworthy specimens.

— MESSRS. CARTER & Co. have issued a liberal schedule of prizes offered by them, to be competed for at the different meetings of the Royal Horticultural Society during the ensuing season:—£25 10s. is offered in six prizes for thirteen varieties of vegetables; £15 15s. in five prizes for three dishes of Peas; £4 in four prizes for the new Khiva Melon, also a similar amount for Cream Pine Melon; £10 in five prizes for groups of twelve flowering annuals; £3 3s. for Vick's Criterion Tomato, and £11 11s. for ten varieties of vegetables.

— WE have to record the DEATH OF MR. THOMAS MOFFATT, which event took place on the 4th inst. in his ninety-first year. He was gardener to the late Viscount Sydney at Froggnall for a period of twenty years, up to the time of his lordship's death. He then went to Clumber Gardens, where he served three Dukes of Newcastle—the father, the son, and grandson, and was much esteemed by all the members of their Graces' families, being a man of large and varied information, and eminent as a thoroughly practical gardener. He was the oldest Fellow of the Royal Horticultural Society, and was appointed by that Society to form one of a Committee of three to choose a site for the new garden about to be formed, when Chiswick was selected as the most eligible out of several estates inspected, and the recommendation of the Committee was adopted. He was a man of high principles, strict integrity, and faithful in his friendships.

— THE Lisbon correspondent of the *Daily News*, writing on the VINES OF MADEIRA, says:—"Late accounts from Madeira speak very discouragingly of the precarious condition of affairs in the island, and the gloomy look-out for the future. The Vines have suffered terribly, and almost promise to disappear before the ravages of the dreaded *Phylloxera vastatrix*. As all the world knows, the Vines of Madeira constitute its principal sources of wealth, and they were beginning to recover from the disease, many new vineyards having been planted. The cultivation of the Sugar Cane has been tried as a substitute for the Vine, but it does not appear to offer the advantages hoped for, on account of the competition of the sugars of South America, the West Indies, and other places."

— WE have received the first number of a new monthly publication entitled "THE MIDLAND NATURALIST: the Journal of the Natural History, Philosophical, and Archaeological Societies and Field Clubs of the Midland Counties." It is edited by Messrs. E. W. Badger and W. J. Harrison, F.G.S.—a guarantee that it will be conducted with zeal and ability. The contents of the first number are varied and interesting. We extract the following from the notice to subscribers:—"As the cost of production is strictly limited to outlay for paper, printing, and unavoidable expenses (editorial services being entirely gratuitous), we confidently rely on the efforts of every subscriber who approves of our efforts in providing a useful medium for inter-communication between the naturalists of the midland counties, to aid us by his personal influence in extending our circulation." A very reasonable request, for the Journal cannot fail to be acceptable to those interested in natural-history subjects. It is published by Hardwicke and Bogue, 192, Piccadilly, London, and by Cornish, Brothers, New Street, Birmingham; also at the *Herald* office.

NOTES ON VILLA AND SUBURBAN GARDENING.

WE took advantage of the late frost to give all our Rose beds a good covering of manure, which will remain on the surface throughout the winter, and will be turned in after the spring pruning. We should have done this earlier in the season had there been sufficient frost to have prevented the wheelbarrows from cutting up the walks. Roses are in a very forward condition from the continuous mild weather, and many of the top buds are breaking into leaf. Although this is the case they should by no means be pruned yet, full directions for which will be given at its proper time.

Embrace every favourable opportunity to have ground in readiness for the sowing of the early important crops, for attention in this department must now be concentrated on the future, and our experiences of the past should help us to conquer the trials and difficulties that are sure to be in store for us.

Hotbeds and Frame Management.—There is no fixed rule that we are aware of as to the proper time for making hotbeds, and there are no appliances more useful in suburban gardens than frames. Our old cultivators had always to depend on the dung frame for their first early Cucumbers, and the most expert and attentive of them usually cut their first Cucumbers from the frame early in March. A brisk heat had constantly to be kept up, and every care taken of covering the frames with mats nightly. But these garden frames are not only useful for the raising of Cucumbers and Melons, but are indispensable for forcing Asparagus, early Potatoes, Carrots, Radishes and Lettuces, the propagating of bedding plants, and the raising of flower seeds, such as half-hardy annuals, &c.; in fact, it is surprising to many in these days, when hot-water appliances are so plentiful, what can be done with a good heap of hot stable manure and several garden frames. Leaves that were collected in the autumn should now be mixed with some long and fresh stable manure. The first thing is to throw it together in a close body to ferment. The more leaves that are mixed with the manure the less violent will be the heat, which for Potatoes, Carrots, and Radishes will be all the more suitable; but what is intended for the raising of Cucumbers may consist chiefly of stable manure. This will become very hot, and in a week or ten days will require carefully shaking out. Every lock that adheres together must be shaken to pieces, and water must be added as the turning proceeds if any portion has heated itself dry. In about another week it will require to be again turned over to sweeten. Where leaves are used liberally the heat will be more lasting. When the rank steam has escaped the making of the bed or beds may be proceeded with. Select a site which is fully exposed to the sun, then measure a space about a foot or 18 inches larger all round than the frame to be used. Place four sticks, one at each corner, as a guide, and commence building the bed, carefully shaking the material as before, employing some of the longest for building the sides, which should be made firm and neat as the work proceeds, also as upright as possible. A good lasting bed for Cucumbers will require to be made from 4 to 5 feet high, but for Potatoes, Carrots, &c., 3 feet will be ample; for these crops warmth is only required to first start them. With Cucumbers the case is very different, and a strong heat of 70° should if possible be retained throughout the early spring months. When the frame is placed on insert a pointed stick or two in the centre of the beds for testing the heat, and if found not too fierce half a barrowload of good light soil should be placed in hillocks in the centre of each light for planting the Cucumber plants in. We find it best to raise the plants in pots and to plant them out in the centre of these hillocks, adding more soil as the roots penetrate through the first lot of soil.

For growing early Potatoes the beds will require making in a similar manner, but having from 9 inches to a foot of soil spread all over the surface. While the bed is preparing lay some fair-sized early kidney Potatoes to sprout, and when all is settled plant them from a foot to 15 inches apart, sprinkling a little Radish seed (Wood's Early Scarlet is as good as any) over the surface and slightly rake it in. The Radishes will not interfere with the growth of the Potatoes. It will be necessary to give abundance of air on all favourable days to prevent both Potatoes and Radishes from becoming drawn. Early Horn Carrots are grown in a similar manner, and are always acceptable while young for soups, &c. Sometimes temporary frames are constructed for these crops, but more often ordinary frames are first used, and as the weather becomes warmer these frames are turned to use in various other ways. Where there is room for sowing a few Lettuce seeds there is none to surpass the Early Paris White. This is the most useful little Cabbage Lettuce for early work yet sent out; it is very tender and sweet, as well as quick "hearting."

WORK FOR THE WEEK.

HARDY FRUIT GARDEN.

PRUNING of Apple, Pear, Plum, and Cherry trees should now be in a forward state, and the requisite nailing of trees against walls attended to. This description of work should be concluded with all dispatch. The Apple and Pear produce fruit upon spurs, which are terminal buds upon short stubby shoots; these must be scrupulously retained, though in some instances they when old become too long and spreading. It is then desirable to thin them and bring them as near to the branches as possible by cutting out the straggling and long parts, retaining those nearest the branches. Pyramid and espalier trees are amenable to the same treatment. Pyramids often become crowded with wood in the centre of the trees: thin out so as to admit light and air to every branch. All spray if more than an inch long to be cut back to within half or three-quarters of an inch of its origin; the leading shoots to be cut back to 12 inches and the side shoots to 6 or 9 inches, in order to secure the well-furnishing of pyramids no

full-sized. Espalier or wall trees should have the leaders cut back to 12 inches and the side branches trained-in their full length. All shoots or spray not needed for extension or the formation of new parts to be pruned close. Plums and Cherries have the fruit for the most part borne on short spurs or shoots, the fruit buds being clustered around the shoot with a wood bud in the centre. These must not be shortened, but shoots that are more than 9 inches in length should be cut back to within two or three eyes of their base, and main shoots may be trained-in their full length. The Morello Cherry should have as much young wood laid-in as practicable, cutting out any long bare branches, but any shoots not amenable to training may be cut back to two or three eyes. Shoots of pyramidal Morellos not over 5 inches long need not be shortened, as too close pruning is not productive of a crop, especially if the trees are vigorous, they being more judiciously treated by summer-pinching and root-pruning. For securing the trees to walls we use medicated shreds, which are more durable than cloth, and any heavy strong branches are secured with tarred string. The surface soil should be removed down to the roots of any trees requiring assistance and a dressing of rich compost given, of which two-thirds should be loam, supplemented with a mulch of good manure: this will attract the roots near the surface and promote fruitfulness. In the case of unfruitful or very vigorous trees omit the dressing. Charred refuse and wood ashes in small quantity with some fresh loam are good for fruit trees of all kinds, supplying them with potash.

Apricots may be pruned in mild weather. Train-in young shoots thinly, cutting out those which are old, long, and bare, though it is not advisable to use the knife too freely, as it not infrequently results in extravasated sap or gum in the branches retained. Any shoots not available for nailing-in cut back to about an inch, retaining all the spurs unless very long, in which case it is necessary to shorten or remove them, the object being to keep the shoots and spurs close to the wall in order that they may derive the full benefit of its warmth. Make sure that none of the shoots or branches are bound too tightly. The pruning of Peach and Nectarine trees may stand over until next month, though we prefer to prune every description of fruit tree so soon as the leaves have fallen. Any trees infested with scale may be dressed with a composition formed of 1 lb. of soft soap and a quarter of a pint of spirit of turpentine to a gallon of boiling water, applying it carefully with a brush at a temperature not over 120°, and if a pound of tobacco powder be added it is good against every description of insect.

FRUIT HOUSES.

The early forcing of *Figs* is most successfully accomplished by trees in pots with a slight bottom heat, a bed of leaves producing a gentle and continued warmth which should not exceed 65°. The temperature of the house should be 55° to 50° at night and 60° to 65° by day with sun. The trees may be syringed twice a-day in bright weather, but in the morning only in dull weather. If the soil in the pots be dry it should be thoroughly moistened before plunging the pots in the bed. Those having trees planted out in the Fig house will have them dressed with a mixture for preventing red spider, the great enemy of the Fig. Pruning should be confined to the cutting-out of old bare wood and regulating the shoots. A little of the surface soil should be removed from the borders, replacing with fresh, the house being thoroughly cleaned. The border must be in a thoroughly moist state when forcing is commenced. Figs to do well require a light airy structure, and are deserving of something better than shaded positions beneath Vines.

Cucumbers.—Great care and attention are necessary to maintain healthy fruitful growth during the dark days. Do not push the plants by sharp firing or frequent supplies of strong liquid manure, but maintain an equable temperature and a due amount of moisture both at the root and in the atmosphere. Great variations in heat and moisture are prolific sources of stunted growth and yellow fruit. The night temperature in the severest weather ought not to be less than 65° in the morning, 70° at night, and 75° by day, with an advance of 10° or more from sun heat, attending to regulating the shoots frequently and not allowing the foliage and shoots to become overcrowded.

Strawberries to afford fruit in March should now be introduced to a house, where the pots can be placed on shelves at a not greater distance from the glass than 2 feet. We prefer the plants at 9 to 12 inches distance, and do not advise their being placed in heat until the pots have been plunged for a period of not less than three weeks in a bottom heat of not exceeding 65°. That afforded by leaves is most suitable. By the end of the time stated the bottom heat will have subsided and the roots will be in an active state. The plants may then be placed upon the shelves of a vinery started at the same time as the Strawberries were placed in the bed. We use turves 1½ to 2 inches thick for standing the pots upon. The plants root into the turf and are not so susceptible of injury by drought as plants with the roots solely confined to the pots. Plants for forcing should have well-developed crowns. Black Prince, which though small is still one of the best for early crops, Vicomtesse Héricart de Thury, La Grosse Sucrée, and Gold-finder are also certain setters. A little of the surface soil should

be removed from the pots and replaced by fresh loam with a half part of dissolved bones. Syringing may be practised twice a-day, and watering must be done carefully. The temperature should be 55° to 60° at night and 60° to 65° by day, rising to 75° or more from sun heat; after flowering the temperature may be increased.

PLANT HOUSES.

In the stove there will be little doing. It should be kept at a day temperature of 65° to 60° by day and 60° to 55° at night, the plants being carefully watered, evergreens being kept so moist as to prevent the foliage flagging, whilst deciduous plants may be kept so dry as to prevent the wood shrivelling. Clerodendrons, Allamandas, and Dipladenias having had a period of rest may be pruned and be sprinkled overhead twice a-day, affording moderate moisture at the roots: indeed Dipladenias should never be watered until dry, and when the roots have permeated the fresh soil water may be more frequently applied. All plants early in the season start more freely into growth in bottom heat, which should range from 80° up to 90°. Eucharises having had a season of rest, also Gardenias if set with buds, will, if placed in bottom heat and supplied with weak liquid manure, flower earlier than plants without the stimulus, thereby securing a prolonged bloom. A batch of Amaryllises, if introduced to bottom heat and kept moist, will start strongly and produce a fine display at an opportune time. Splendid new varieties of these gorgeous flowers have been raised by such firms as Messrs. Veitch, Williams, and Henderson.

Gloxinias may be potted. For early flowering remove most of the old soil and employ pots that will admit of an inch of soil being placed round the corms, which should only be just covered; water sparingly until growth takes place. Two-thirds of turfy loam and a third in equal parts of well-decayed manure or leaf soil and sandy peat, with a sixth of silver sand, will grow them well.

Ixoras should have sufficient water to maintain the foliage in good order. In a low temperature they do not succeed unless bottom heat be afforded, that in a measure lessening the necessity for so high an atmospheric temperature, which is fully 5° higher than is required by a majority of stove plants, and a corresponding degree of atmospheric moisture. Keep a strict look-out for insects, and destroy them by approved means, fumigation being the best for aphids and thrips, whilst scale and mealy bug yield to a solution of soft soap, 1 lb. dissolved in a gallon of water, and a quarter of a gill spirits of turpentine. Apply it with a brush or sponge, and syringe with clear water after the operation. Callas or Richardias should be brought forward in a temperature of 55° to 50° minimum, and 60° to 65° maximum. Bouvardias and Tree Carnations do not flower in winter with certainty in the temperature of a greenhouse, they requiring a somewhat warmer atmosphere, and are further assisted with weak liquid manure given occasionally.

Both the herbaceous Calceolarias and shrubby kinds are often neglected. Shift them into larger pots before the roots become closely matted; and Cinerarias to be moved into pots a size larger, keeping cool, moist, well ventilated, and free from insects. Pelargoniums not in their blooming pots to be placed therein without delay, keeping the shoots tied-out as required, and stopping those not well furnished or required for succession. They can hardly be kept too cool provided frost be excluded, nor have too light and airy a position.

TRADE CATALOGUES RECEIVED.

J. C. Wheeler & Sons, Gloucester.—“*Little Book*” illustrated, and *Short Select Seed List*.

James Dickson & Sons, 106, Eastgate Street, and Newton Nurseries, Chester.—*Catalogue of Vegetable and Flower Seeds, Garden Implements, &c.*

Dickson & Robinson, 12, Old Millgate, Manchester.—*Catalogue of Select Vegetable and Flower Seeds*.

Webb & Sons, Wordsley, Stourbridge.—*Illustrated Spring Catalogue of Vegetable, Flower, and Farm Seeds*.

James Wm. Mackey, 23, Upper Sackville Street, Dublin.—*Descriptive Seed Catalogue and Amateurs' Guide*.

W. H. Rogers, 182, High Street, Southampton.—*Descriptive Catalogue of Seeds and Garden Requisites*.

P. J. Looymans & Zonen, Oudenbosch, Holland.—*Catalogue of Hardy Ornamental Trees, Evergreens, and Flowering Shrubs*.

TO CORRESPONDENTS.

* * * All correspondence should be directed either to “The Editors” or to “The Publisher.” Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

BOOKS (A. Nelson).—“The Garden Manual,” published at our office, free by post if twenty postage stamps are enclosed with address.

REMOVING BULBS (Biceps).—Take them up now and plant them in pots, from which you can turn them out undisturbed when you are in possession of your new garden.

OLD BOOK (J. Davis).—It is one of Bradley's compilations and of no value.
POTATO DISEASE.—In answer to "A COUNTRY VICAR" (*Journal of Horticulture*, page 14), a correspondent informs us that Mr. W. G. Smith read a paper before the Scientific Committee of the Royal Horticultural Society on January 21st, 1874, in which he gave details of a number of experiments with diseased Potatoes and different preparations of carbolic acid. In every form and instance the carbolic acid proved a failure.

PEAS FOR SUCCESSION (A Beginner).—Quantity having to be considered before quality, we advise you to grow First and Best, sowing so soon after the middle of February as the weather permits, and again early in March, at the same time making a sowing of Filibasket; after this March sowing a sowing should be made every fortnight or three weeks until the middle of June, of Dr. Maclean, Maclean's Wonderful, and Veitch's Perfection up to the middle of May, and afterwards of Prisetaker, Green Marrow, Culverwell's Prolific Marrow, and Ne Plus Ultra. Your soil being light sow in well-manured trenches after April, and water abundantly in dry weather, employing liquid manure poured in shallow trenches along the sides of the rows, not upon the stems of the plants.

CAULIFLOWER AND BROCCOLI FOR SUCCESSION (Idem).—Cauliflower you may have in frames or handlights; if not, sow seed at once in a pan or box and place in gentle heat, pricking out the plants in boxes to be placed in frames. These plants if planted out in April will come in in June. Sow again in March on a warm border, and every three weeks from that sowing up to the close of May, the last spring sowing being made in the third week or early part of the fourth week in that month. Sow for wintering in frames or under handlights the third week in August. Walcheren is the best variety, but is preceded by Early London. Early in April sow Veitch's Self-protecting Autumn Broccoli, which is to be taken up when having heads 4 to 6 inches across and planted in frames, affording protection in severe weather, and about the early part of April sow Penzance Early White, Cooling's Matchless, Leamington, and Lauder's Goshen Late White Broccoli.

CABBAGES, CAULIFLOWERS, &c., CLUBBING (J. W.).—It is caused by the larva (small white maggot) of a weevil, and is very common in light sandy soils, especially those long under crops of the Brassica family. We are much troubled with it ourselves, and find common salt a good application at the rate of twenty bushels per acre; also nitrate of soda, $1\frac{1}{2}$ cwt. per acre, or 1 lb. to 30 square yards applied prior to planting; gas lime twelve bushels per acre spread on the surface and pointed in before planting is, however, a better preventive than salt or the nitrate of soda. At planting time the root stems should be examined, and if they have warts or knobs upon them they should be opened and the grub inside them removed, planting afterwards, the growth of the plants not being much retarded. Frequent transplantation is good, as it tends to a sturdy ligneous growth and admits of more frequent examination of the stems.

HOYA IMPERIALIS CASTING FLOWER BUDS (A. B.).—We think the roots are in an inactive state, occasioned probably by a wet state of the soil and the recent repotting. Water more sparingly, affording slight bottom heat if practicable with a view to healthy root-action, with which and a moderately moist and brisk heat the flowers ought not to drop.

PLANTS FOR STOVE (Economy).—*Foliage:* Croton Weismanni, C. Johannis, Dieffenbachia Wreli superba, Dracaena Cooperi, D. reginae, Maranta rosea picta, M. illustris, Pandanus Veitchii, Chamaedorea elegantissima, Thrinax elegans, Cocos Weddelliana, and Areca Verschaffeltii. *Flowering:* Anthurium Schertzerianum, Aphelandra aurantiaca Rozeii, Centropogon Lucayanus, Dalechampia Rozeiliana rosea, Eucharis amazonica, Francisca calycina major, Gardenia florida intermedia, Gesnera exoniensis, Hoya bella, Imantophyllum minutum, Ixora acuminata, I. Williamsi, Poinsettia pulcherrima, Rondeletia speciosa major, Scutellaria Mociniana, Tabernaemontana coronaria flore-pleno, and Thyrsacanthus rutilans. We have omitted climbers, but you may probably wish a few such as Stephanotis floribunda, Bougainvillea glabra, Clerodendron Balfouri, and Allamanda Chelonii. We advise you to commence with a few only of those named, and fill up with Gloxinias, Achimenes, Begonias, and Caladiums. Our "Indoor Gardening" will suit you, post free for 1s. 7d.

LIME RUBBISH FOR ROSES (J. S. B.).—If your soil be very strong it would improve its texture, but to a light soil it would do no good other than in being moisture-holding. Use it moderately if at all, and treat liberally with manure.

ANTHURIUM ANDREANUM.—Several correspondents ask where this can be obtained. We shall be obliged by being informed.

ARRANGEMENT OF PLANTS IN FLOWER BEDS (Constant Subscriber).—Some notes on this subject will shortly be published.

LILAC ZONAL PELARGONIUMS (Amateur).—One of the best of the lilac-tinted pinks that we are acquainted with is Heather Bell, which was raised by Dr. Denny. It has good trusses and well-formed flowers. The colour is very distinct and pleasing, and the habit of the plant is dwarf and free.

EARLY PEACH AND NECTARINE FOR ORCHARD HOUSE (J. B. B.).—One of the best early Peaches is Hale's Early. It is an American variety and is suitable for growing under glass and on walls. The best early Nectarine is Lord Napier, which was raised by Mr. Rivers. It is not only the earliest but one of the finest Nectarines in cultivation, and the tree is a good grower and bearer.

GROS COLMAN GRAPE (Clericus).—It will keep well until Christmas and makes a noble dish. It is the largest of all black Grapes, and when grown well and ripened early is of fairly good quality. Where the gratification of the eye is considered a Vine of Gros Colman is worthy of being grown.

LIGHT-COLOURED CLEMATISSES (Ightham).—The following of the lanuginosa type are effective:—Lady Caroline Nevill, flesh white, mauve bars; Lanuginosa candida, greyish white; Lanuginosa nives, pure white; and Beauty of Surrey, greyish blue. Of the Patens type Miss Bateman, white, chocolate anthers; Fair Rosamond, bluish white, faint red bar; and Vesta, white with purplish stamens, are good and inexpensive. They are hardy and free, flowering earlier than the lanuginosa varieties.

EARLY TOMATOES (A New Subscriber).—The earliest variety is Early Gem. The plant is of slender growth, and the fruit is small. It is useful for growing in pots for early produce. Orangefield is dwarf, early, and prolific, and is good for pot culture. Vick's Criterion is a very fine new Tomato which ripens early. It is very prolific, smooth, and well coloured. It is well worthy of cultivation. Green Gage is the best of the yellow-fruited varieties, and is moderately early.

ASPLENIUM LUCIDUM (R. Watson).—The dust is the spores of the Fern.

RAISING LOBELIAS (Juno).—Seed of Lobelia speciosa cannot be sown too early provided conveniences are afforded for growing the plants on until they can be placed in cold frames early in May. Unless you have a house, such as a warm greenhouse, in which you can place the seed pans after the seedlings appear in the cucumber frame, we should defer the sowing of the seed until March. When once the seedlings appear they must have a steady unchecked growth. Sow the seed thinly in light rich soil, covering very slightly and keeping regularly moist. Dry soil occasionally and thickly sowing the seed are prime sources of failure in raising Lobelias.

WINTER TREATMENT OF IRESINE LINDENI (C. M. D.).—Any glass structure from which frost and excessive damp is excluded will answer for wintering the Iresine. A few plants kept in well-drained pots among the Geraniums and other bedding plants will afford an abundant supply of cuttings for spring propagation, especially if the store plants are shifted now into larger pots and placed in heat towards the end of the month. Do not fail to remember that no heat beyond the temperature of a greenhouse is required, unless it becomes necessary to accelerate growth for a supply of cuttings. The book you require is the "Cottage Gardeners' Dictionary."

CAMELLIA SHEDDING ITS FLOWER BUDS (W. M. G.).—Bud-shedding is caused by drought, overwatering, or debility. As your plant is so vigorous we attribute the mischief to one or both of the first two causes, knowing as we do that a day or two's drought or overwatering only once at that critical period when the buds commence swelling for full expansion will cause all the buds to fall off. Most probably the evil arose from an overdose of water, and notwithstanding the healthy condition of the plant we should be disposed to examine and remedy any defect in its drainage on the approach of the next season of growth, and then under such care and painstaking as you evidently bestow upon your plants plenty of flowers will most likely crown your efforts next season.

NAME OF FRUIT (Connaught Subscriber).—Doyenné d'Éclair.

NAMES OF PLANTS (X. Y. Z.).—Euphorbia jacquiniæflora. (R. F. B.). We cannot name from a scrap of leaf. (A. H. S.).—The specimens were not numbered for reference.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

MANAGEMENT OF FARM HORSES.

IN those cases where people do not breed their own horses it is best to select animals of sufficient weight and size, say from 16 $\frac{1}{2}$ to 17 hands in height, with plenty of substance and bone, but at the same time with clean legs and activity; in fact we may well adopt the good-bred Clydesdale as our pattern, and, if possible, the animal when purchased should not be under four nor over five years of age, and if an arrangement can be made for a few days or a week's trial so much the better. In the event of farmers breeding horses for their own use, the "Clydesdale" style is still the best. Horses have now been very dear for ten or twelve years past, and some 80 or 40 per cent. higher than formerly; the importations from France, however, have been very acceptable, and have been the cause of keeping the price more moderate. A large portion of these, however, are but ill adapted for farm work, not being sufficiently heavy and powerful, but are more fitting for light work and van purposes; yet many farmers continue to buy them because they cost less money than heavy well-bred English horses. We recommend in farm work two horses costing sixty guineas each as being more profitable than three costing forty guineas each, for although the total cost is the same, in the former case you have only two lives at stake instead of three, only two animals to feed, harness, shoe, &c., instead of three, and less labour in attendance. All these are important items, and we know from experience that the two powerful horses will do the same work as the three lighter animals if properly fed and suitable implements are provided. On a small farm of forty or fifty acres arable with a few acres of grass land, if the soil is dry and friable, the two horses alluded to are equal to any work on the farm, two to the plough in fallow-ploughing in winter and spring, and one to the plough in summer work, or two to the double-furrow plough. Again, instead of heavy scarifying with Coleman's implement, let a strong iron horse hoe with tines and shares be used with one or two horses according to the work to be done; in fact, on an occupation of sixty or seventy acres where some portion is grass land as well as the fifty acres above named, two horses with a lighter active horse for the market cart and light daily work on the farm are quite sufficient to keep all the work in a forward and decent condition. Farm horses, in our opinion, should never be turned out to graze. In our climate, even in the summer months, we often have a white frost at night; how can we expect

that animals in hard work and excitement during the heat of the day can lie down in the open fields or pastures at night-time without damage to their health? and although it may not be discovered immediately, depend upon it the seeds of disease are sown under such a system of management, and will certainly crop out in ill health sooner or later. Besides, how many more accidents to life and limb occur to horses turned out to graze than those carefully boxed or tethered in well-constructed stables. The question of food likewise is in favour of feeding at the stalls, because an acre of grass or green fodder of any kind will go much further and with less waste than when fed in the field. Watering the animals is of more importance than is often supposed. We never allow a horse to drink at a pond or trough, believing that when they take their fill without stint during hard work it is often the cause of broken wind, and it is only possible to regulate the quantity when they have water given at the stalls.

We will now refer to the accommodation for horses engaged in agriculture, and unfortunately the stables are often as bad as they can be both for the health of the animals and the saving of the manure. When we consider the annual depreciation of the value of a horse under the best of management to amount to four or five guineas it shows at once the importance of a well-built and well-placed stable. It is usual to see on the majority of farms the stable badly ventilated, and the floor of the stalls pitched with large or small stones irregularly laid and subject to accumulations between them of rotten straw and urine giving off foul air continually, so much so that on opening a stable door of a morning when the attendant enters he is often obliged to turn his head another way, the ammoniacal vapour being so powerful as to painfully affect his eyes. If this is the result to the attendant, what must be the effect on the health of the horses who are breathing foul air often for many hours in succession? Need we wonder at the number of horses engaged in agriculture losing their eyesight? Look again at the stables for the animals to lie down upon; in fact they do not lie down when they ought, or otherwise would if they had a good bed, and is it not a loss if they do not take a proper amount of rest? The hard stables are also about the worst floor they can stand upon, and often injure the feet by sandcracks and broken hoofs, with an increase in the cost of shoeing. Descriptive designs for stables, &c., in our next.

POULTRY IN 1877.

It is always pleasing and generally instructive to look back over the events and progress of the past year. Putting aside the more exciting topic of politics, even in the quiet walk of the garden, the farm, or the poultry yard, with which we are now concerned, all years are not the same. It is well they are not, for much of the amusement of such occupations is owing to their constant variety. Some years are more remarkable for the forwardness and early maturity of the birds reared, others for greater size accompanied by backwardness. The year just past has not been an uneventful one for the poultry fancier. Two bad hatching seasons had preceded it, and last year a mysterious epidemic appeared which at one time threatened to become a scourge to the yards of the whole kingdom. Particular diseases among human beings seem to have their cycles. Whether old enemies appear under fresh external forms and new names we are not sufficiently scientific to say, but certainly gout and rheumatism have succeeded ague and influenza, while diphtheria and blood-poisoning were unheard of fifty years ago. In the same way the maladies of the poultry yard have changed, or at least our observation of them has become more accurate. With the old hen-wives all ailments were the pip or the roup. A smattering of medical practice in poultry brought us to the knowledge of roup, and for a certain time we referred to that complaint all diseases from a slight sneeze—equivalent to a cold in human beings—to an advanced stage of what would be parallel to consumption. Probably many like-diseases were confused under one name, and this "new disease" was only one of the genus. Be that as it may, it came in a most destructive form, and was intensely infectious. Its ravages were chiefly confined to the north of England, or to yards whither it had been imported from northern shows. One or two selfish exhibitors, who confessedly had it raging in their yards, sent infected birds to Bristol and other shows, and so did their best to cause its spreading; but, fortunately, in the past year its virulence seemed to pass away; and though we hear that many yards are not free from its traces, yet it comes in a modified and curable form.

The early part of the year was extremely mild though damp, and, contrary to what we should have expected, it was reported that a great number of eggs were clear, and broods consequently small. The unseasonable warmth of the winter and early spring was succeeded by what has so aptly been called "the still sharper English spring." The east winds of April and May were most destructive to early broods, and the result was that but few early birds appeared at the chicken shows; but those which had braved the inclement season were for the most part forward and very fine. If possible these peculiarities of seasons should be taken into account by promoters of chicken shows. Unfortunately in the

past year when chickens in general were backward the great shows for them were held early and near together, so that the few early birds were again and again pitted against each other, while most of those which will probably turn out the finest adults have not been seen, or have competed in unequal contest with old birds at some of the later shows. But we will reserve this subject for another communication, in which we hope to enter fully into the position of poultry shows. The autumn has been mild and has favoured the growth of late-hatched birds. We have, ourselves, cockerels and pullets hatched in July still progressing well in the new year, and promising ere long to rival the best April hatches. But we must pass from a general review of the poultry year to particular breeds.

Dorkings, as a rule, have quite held their own. This old English breed must in some peculiar way be suitable to our climate and national requirements, for among all the changes of fashion it never loses its place. The best birds always command high prices, while specimens deficient in exhibition points find a market for the improvement of farm stock. We regret at Birmingham to see a falling-off from former years in number and quality, though this observation does not apply to the Whites. There eight or ten years ago the show was wonderful; many of the noble landowners of the midland counties who showed nowhere else sent to Birmingham, and we saw and have bought there many a grand bird fresh from a park run. This is much changed, though probably rather on account of shortcomings in the shows' arrangement than from any falling of the breed's popularity. Dorkings do not stand confinement, and Birmingham is a long, far too long, a show. The type of bird, too, has changed, and in our opinion not for the better. A slight increase in weight has been obtained at the expense of longer legs and less round breast. Now and then a well-shaped bird appears, and every fancier exclaims "A true Dorking shape!" as if the majority of birds could not be bred to that type. The dark-coloured birds, too, have been judged far too much for feather, and dark feet (a terrible eyesore in a Dorking) have followed the fashionable dark plumage. Silver-Greys are about stationary, but Whites have made immense strides during the last three years; both in size, colour, and comb they are immeasurably superior to the Whites of five years ago. Could the classes of dark Dorkings at Birmingham in 1877 be mixed with those of 1867 we believe that the prizes would for the most part fall to the latter; while in the case of Whites we feel confident that the birds of the present day would utterly distance their progenitors of ten years ago. Cuckoos do not progress in favour to judge by the Surrey shows, of which they are the speciality. They have been too much crossed for size, hence their produce is uncertain in marking, and this disgusts breeders. Those shown are generally up to a fair standard.

In the year just passed have been shown some of the best Cochins that it has ever been our fortune to see, a few of them uniting the greater size and heavier leg-feathering of the more modern Cochin type with the characteristic form of the earlier type. Of late years we have regretted to see long legs, long backs, and tapering tails often in the highest place just on account of the bird's size; but some of the great breeders seem now to have mastered the combination of size and form. We are specially thinking of Mr. Proctor's two renowned Buff cocks and of Mr. Darby's Whites of both sexes. Fashion seems to favour the paler hues in Buff hens even when accompanied with great irregularity in colouring. This is to be deprecated, for surely a rich and even colour is one of the special beauties of a Buff Cochin hen. We should like to see Cinnamons again amongst them, and have been pleased of late to observe here and there a Grouse hen among the Partridge. Blacks are making great progress. The first cockerel at Birmingham struck us as being the Black nearest in shape to a good Buff that we had ever seen, and capital in lustre too. Who could look at the motley group of Langshans there and wish to perpetuate the species at the expense of the sheeny symmetrical Black Cochins?

The decadence of Dark Brahmas is perhaps a sore subject for some, but it is none the less a fact. The decrease in entries at the Crystal Palace speaks for itself. The fact is, an exaggerated estimate was formed of the merits of the breed, and a *furor* in its favour was got up resembling in a minor degree the Cochin mania. They have been found excessively difficult to breed to any particular type, a fact which has always inclined us to the side of those who believe in their mongrel origin, and hence a reaction has followed. To obtain a particular and certainly most beautiful type of pencilling in the hens has been the great object of most of their admirers, and this has been attained at the expense of size and form. Mr. Lingwood and one or two others have continued to breed for form as well as colour, regardless of the fashion, and we hope they will soon be rewarded. Though the marking of the hens is at present almost perfection, the cocks we consider greatly inferior to those of five years ago. Vulture-hocked birds, again, appear in the prize list, and rightly we think, for their exclusion puts out many of the otherwise finest specimens, and is an encouragement to such frauds as that exposed in a prize cockerel at the Crystal Palace in 1876. The Light variety has not declined in numbers to such an extent as the Dark, and

in quality quite keeps up its position. They are more shapely and have finer leg-feathering than they had a few years ago. We hear from the highest authorities that really good specimens of both varieties continue to be greatly in demand at high prices in spite of this decrease in the number exhibited.

Success in the Game fancy is still confined to few, but this we believe chiefly results from the fact that the breed is fortunate enough to possess a few most enthusiastic admirers, who breed it in no haphazard but a truly scientific way, with pedigrees as carefully drawn as those of thoroughbreds or thoroughbreds. Much controversy has arisen as to their method of marking their birds, which is in some cases too patent, and might bring them under the rule (if strictly carried out) against marked birds. We do not for a moment suppose that the eminent breeders who mark in this way have had any other object in view than to distinguish birds privately for themselves; but why it should be impossible to mark Game like any other breed (which we have found perfectly easy) in ways that no one can detect without difficulty, we cannot understand. We commend to their attention the fact that considering the somewhat unjust censure which has of late often been passed on poultry fanciers in general in consequence of the dishonesty of a few, that it behoves us not only to avoid all dishonourable conduct but everything which may by enemies be distorted into suspicion of it.

The chief event of the year in Game has been the production by Mr. Pope of a Black Red cockerel, pronounced by the greatest judges to be the most perfect specimen of the modern type of Game cock ever seen. At Oxford he changed hands for the great sum of fifty guineas, and at the Crystal Palace he again did so for the almost unprecedented one of one hundred guineas. This is an age in which majorities tyrannise over minorities, and so the less popular breeds bid fair to become extinct. White and Black Game become fewer and fewer, and the old Brassy-winged and Dun birds are, in the show pen at least, almost extinct.

A SIMPLE CHICKEN COOP.

"BEING engaged in raising chickens," says a correspondent of the *Rural New Yorker*, "I found it necessary to make cheap coops to keep them in for a few weeks. I take an old barrel and tack every hoop on each side of a seam between the staves with an

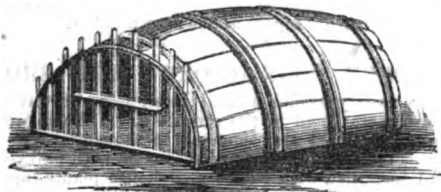


Fig. 7.

inch wrought nail; after clinching the nails I saw the hoops off on the seam. Then I spread the barrel open, as in the annexed figure, by cutting a board about 20 inches long for the back of the coop, and two small pieces to tack laths on for the front part. The upper section of the back is fastened with leather hinges, so that I can open it at pleasure."

POULTRY SHOWS.

THE twelfth annual show at WOLVERHAMPTON is fixed for the 26th and 28th inst. The schedule has reached us; it is as liberal as its predecessors. Nearly £200, with the addition of several silver cups, is offered for competition in the poultry and Pigeon classes. This Show has always been popular and well managed, and we trust it will be better supported than last year, as it is one we should not like to spare.

The WELLINGBOROUGH schedule has also been issued. The Show is fixed for the 2nd and 4th of February. Like Wolverhampton it includes a Sunday. The prizes amount to about £100, with the addition of some objectionable point cups, which are the beacons that generally attract the dealers and warn the amateurs to keep clear. With this exception the classification is good.

PAISLEY POULTRY, &c., SHOW.

THIS was held on the 1st and 2nd inst. in the Drill Hall. It was the largest and best Show the Society has ever held, the entries numbering in all 1106.

POULTRY.—SPANISH.—1, J. Hogg. 2, A. Scott. 3, W. Cuthbertson. 4, R. Begg. *Chickens*.—1 and 4, Mrs. H. Gracie. 2, T. B. Retson. 3, J. E. Crawford. *Hens*.—1, T. B. Retson. 2, A. Scott. 3, J. Park. 4, W. Greenshield. **DORKINGS**.—Coloured.—1 and Special, D. Galbraith. 2, J. Paul. 3, W. Wallace. 4, E. Hunter. *Chickens*.—1 and 3, J. Adam. 2, R. Bertram. 4, J. Paul. *White*.—1, R. Barrow. 2, W. Thomson. 3, J. Stevenson. 4, D. Lee. **CHINESE**.—1, J. Wyse. 2, T. Fullarton. 3, T. Bruce. 4, R. Roxburgh. **BEARMA** *POUTRE*.—1, Special, and 3, Miss E. Russell. 4, W. Good. **SCOTCH**.—1 and Special, J. Gilmore. 2, A. Brown. 3, C. Menzies. 4, A. Love. **GAME**.—Black-breasted and

other Red.—Cock.—1 and Special, J. T. Ferguson. 2, Webster & Dick. 3 and 4, P. McFarlane. *Any other colour*.—Cock.—1, T. Scott. 2, J. Hunter. 3, W. Neilson. 4, Z. H. Heya. *Hens*.—1, P. McFarlane. 2 and 3, J. T. Ferguson. 4, W. McCutcheon. **HAMBURGHS**.—Golden-spangled.—1, M. Douglas. 2, W. Driver. 3, J. Cochran. 4, W. Wallace. *Hens*.—1, J. Crawford. 2, M. Douglas. 3 and 4, W. Driver. *Silver-spangled*.—1 and Special, A. Glen. 2, Robinson & Jagger. 3, H. Stanworth. 4, T. B. Retson. *Hens*.—1, Robinson & Jagger. 2, A. Glen. 3, P. Crawford. 4, T. B. Retson. *Golden-pencilled*.—1 and Special, J. Gilmore. 2, J. Cochran. 3, C. Hiltson. 4, J. Stutard. *Hens*.—1, J. Gilmore. 2, A. McAughey. 3, J. Stutard. 4, W. Barlos. *Silver-pencilled*.—1, W. Reddithough. 2, Robinson & Jagger. 3, T. G. Stephenson. 4, M. Douglas. *Hens*.—1, A. C. Hiltson. 2, J. Lochhead. 3, J. Stutard. 4, W. Barlos. **POLANDS**.—Topped.—1, J. & C. Laird. 2, R. Clark. 3, J. Hunter. 4, J. Stevenson. **CROSSBREED**.—1, R. B. Beane. 2, G. Hamilton. 3, P. Beth. 4, J. C. Shaw. **ANY OTHER DISTINCT BREED**.—1, J. Stutard. 2, T. Fullarton. 3, M. Wallace. 4, J. C. Shaw. **BANTAMS**.—Game, Black-breasted and other Red.—1, A. Mitchell. 2, W. Shenton. 3, J. Mitchell. 4, W. Miller. *Game, any other colour*.—1 and Special, R. Brownlie. 2, W. Barland. 3, R. Love. 4, J. Stewart. *Black*.—1, Special, and 2, G. & J. Good. 3, H. W. & H. King. 4, J. Ross. *Any other colour*.—1, J. Robertson. 2, J. Stevenson. 3, J. Thomson. 4, P. C. Macgregor, jun. **DUCK**.—*Aylesbury*.—1, Z. H. Heya. 2 and 4, J. Adam. 3, J. H. Christie. *Any other kind*.—1, J. Gilmore. 2, J. Allan. 3, J. Adam. 4, J. Melkison. **SELLING CLASS**.—1, R. Fowler. 2, W. Smith. 3, W. McKay. 4, G. Cleland. **PIGEONS**.—*POUTERS*.—Black or White.—Cock.—1 and Special, J. Mitchell. 2, D. White. 3, W. Neilson. 4, A. Dunleavy. *Any other colour*.—Cock.—1, A. Dunleavy. 2 and 4, A. Mitchell. 3, J. Mitchell. *Hens*.—1, J. Mitchell. 2, R. Crow. 3, A. Dunleavy. 4, A. Mitchell. *Black or Blue*.—Cock.—1 and 3, J. Mitchell. 2, D. White. 4, J. Taylor. **RAIDHEAD OR BEARDS**.—1 and 3, R. McKinlay. 2, J. & D. Barr. 4, A. Gray. **TUMBLERS**.—Common and Long-faced.—1, R. Garshore. 2, J. Scott. 3, J. Crawford. 4, Gillies & Gibson. **CARRIERS**.—1 and 2, W. Crawford. 3, A. Gilmore. 4, W. Neilson. *PANTALINS*.—1, 2, and 4, J. Taylor. 3, J. Galt. **JACOBS**.—1 and 3, R. Crow. 2, T. Baird. 4, A. Gray. **NUNS**.—1, A. Rowat. 2, R. McKinlay. 3, J. Munn. 4, W. Young. **TURBETS**.—1, R. McKinlay. 2, A. Gray. 3, R. Miller. 4, A. Nisbet. **COMMON**.—Blue Bars.—1 and Special, R. McKinlay. 2, R. Crow. 3, W. Young. 4, J. Howat. *Any other colour*.—1, W. P. Parker. 2, J. Muir. 3, J. Craig. 4, T. Begg. **ANY OTHER DISTINCT BREED**.—1 and Special, R. Houston. 2, R. Crow. 3 and 4, A. Dunleavy. **SELLING CLASS**.—1, W. Crawford. 2, J. Goldie. 3, J. Scott. 4, J. Miller.

CAGE BIRDS.—CANARIES.—Clean.—1, A. Kelly. 2, J. Brown. 3, W. Humpherson. 4, J. Ferrie. *Clean Yellow*.—Cocks.—1, J. Thorpe. 2 and 4, J. Smith. 3, J. Begbie. 4, A. Ferguson. 5, A. Cochran, jun. *Hens*.—1, A. Russell. 2, J. Gibson. 3, J. Tweedie. 4, W. Clark. 5, J. Ross. *Clean Buff*.—Cock.—1, J. Young. 2, J. Bryson. 3, R. Crawford. 4, T. Buchanan. 5, A. Russell. 6, H. McPherson. *Hens*.—1, H. Niven. 2, J. McNab. 3, Sergt. P. Harrington. 4, J. Cheyne. 5, D. McIntyre. 6, J. Cairns. *Pied*.—1, J. Gait. 2, R. Baird. 3, J. Kennedy. 4, T. Vallance. 5, W. Love. *Yellow*.—Cock.—1, J. Smith. 2, H. Niven. 3, T. McLean. 4, W. Humpherson. 5, J. M. Pool. *Hens*.—1, T. Mitchell. 2, R. Houston. 3, A. Easton. 4, M. Reid. 5, J. McQuillan. 6, Sergt. P. Harrington. *Buff Pied*.—Cock.—1, J. Thomson. 2, J. Gibson. 3, J. Smith. 4, W. Currie. 5, A. Barland. 6, J. Ferrie. *Hens*.—1 and Special, R. Crawford. 2, S. Gibson. 3, T. Scott. 4, J. Smith. 5, J. Gait. 6, A. Cowan. *Pied, Yellow or Buff*.—Cock.—1 and Special, J. Smith. 2, R. Crawford. 3, R. King. 4, J. McPherson. *Hens*.—1 and Special, J. Smith. 2, W. Hunter. 3, W. Reid. 4, A. Kelly. 5, *Green, Yellow or Buff*.—Cock.—1, R. Green. 2, R. White. 3, R. Stevenson. 4, P. McFarlane. *Hens*.—1 and 3, R. White. 2, W. Morton. 4, J. Baxter. **GOLDPINE MULE**.—1, 2, and 4, A. Mauchan. 3, J. Dickie. **GOLDPINE**.—1, J. Arthur. 2, J. Howatson. 3, A. A. Mauchan. 4, J. Jamieson. **HOME OR FOREIGN BIRDS**.—1, W. Clark. 2, J. Brabender. 3, A. Cairns. 4, W. Ritchie.

JUDGES.—*Poultry*: Mr. J. Stuart, Thistlebank, Helensburgh; Mr. W. Jamieson, Gargunnoch, Stirlingshire; Mr. R. Stewart, Blairadam, Kinross; Mr. J. Aitchison, Cambuslang; Mr. A. Glendinning, Strathblane; Mr. J. Sharp, Johnstone. *Pigeons*: Mr. J. Grierson, Strathaven; Mr. J. Glen, High Bushy Hill, Cambuslang. *Canaries, &c.*: Mr. T. Buchanan, Glasgow; Mr. J. McAllister, Glasgow; Mr. D. Duncan, Carron, Larbert; Mr. R. Crawford, Kilbirnie; Mr. J. McPherson, Paisley; Mr. W. White, Renfrew; Mr. A. Howe, Paisley; Mr. T. Fernie, Paisley.

PRESTON SHOW OF POULTRY, &c.

THE second Show was held in the Corn Exchange at Preston on Wednesday and Thursday last. The building is a most excellent one for the purpose, large, well lighted and ventilated, and capable of accommodating an enormous number of birds. In the present case the entries amounted to upwards of 800, of which poultry had 800, Pigeons 400, Rabbits 114, and Cats 20. In poultry there were some very good classes, while others were poor.

Dorkings were a fair lot; while *Cochins* of both classes were very good. In *Game* the cup went to a Brown Red chicken which was comparatively young and raw; the second in that class being a well-built old cock. The rest of *Game* only of moderate quality and few in number. *Hamburgs* not numerous but very good; the cup for the section was, however, awarded to *Spanish*. The *Geese*, *Turkeys*, and *Ducks* were about the best section of poultry, almost every pen deserving a notice. Entries were small in all the *Bantams*, and with the exception of the winners the quality was not high. In the Variety class were some excellent Cuckoo, Pekin, and Blacks, the cup going to a smart Black Red cock.

In *Pigeons* there were five classes for Pouters, some of the birds showing well, but as a rule looking quite flat. Carriers were very good in all classes, especially in the two classes for Blacks, the winners being uncommonly heavy wattled and well shown. Carriers, young, an excellent class. Barbs, cocks, first and second Black, and third Red; the winners in hens all Blacks. Barbs bred in 1877 were a good lot, and in our opinion not one old bird was shown. Dragons Blue or Silver very good; the first a grand Blue cock, as also the second, the third being a Silver. Red or Yellow were but a moderate lot, while those of any other colour were decidedly poor, and young birds very good. Antwerps had five classes, and there were some very good birds. Tumblers, Almond, one of the best classes in the Show, both head and feather properties a treat to see. Any other Short-faces, the winners were Agates and Kites. Jacobins Red or Yellow were a grand class, almost every bird deserving a notice. Jacobins any other colour

Mule, which was second on this occasion, although a winner on previous occasions, and exhibited by Capt. John Gordon.

There were throughout the Show many fine specimens of the Scotch Fancy, Belgian, and Norwich birds, the latter particularly, exhibited by Mr. Blair, being exceedingly high in colour, his Buff Norwich especially, and also a Buff-crested bird, both of which were awarded "specials" as being the best birds of their respective breeds in the Show. They would have done credit to any bird-exhibitor on this side of the border. The Lizards and Cinnamons were fair specimens, the Lizards in particular being above par. The show of British Birds, especially Goldfinches, Linnets, Siskins, and the Starlings, Blackbirds, and Thrushes in the "Any other variety of British Birds," were in fine plumage. Foreign Birds formed a showy class, but the first-prize King Parrot was the king of the lot.—GEO. J. BARNESBY.

CAGE BIRDS.

YOUNG.—BELGIANS.—*Clear or Ticked Buff*.—1, W. Donald. 2, 3, and *etc.* Miss I. Watt. **SCOTCH FANCY.**—*Clear or Ticked Buff*.—1 and 3, J. Taylor. 2, P. Lyon. *Variegated*.—1, 2, and 3, W. Duncan. **NORWICH.**—1, J. Blair. 2 and 3, G. Chalmers. *etc.* H. B. Gibb. **W. SILVER.**—*Clear Buff*.—1, J. Blair. 2 and 3, J. Balfour. *Marked Buff*.—1, J. Blair. 2 and 3, W. Silver. *Ticked, Unevenly-marked, or Variegated Yellow*.—1, 2, and 3, J. Balfour. *etc.* H. B. Gibb. *Ticked, Unevenly-marked, or Variegated Buff*.—1, J. Balfour. 2, G. Ross. 3, J. Blair. *etc.* J. Bisset, P. Lyon. *Crested Yellow or Yellow-marked*.—1, J. Blair. 2, P. Lyon. 3, J. Murray. *etc.* G. Ross. *Crested Buff or Buff-marked*.—1, J. Blair. 2 and 3, W. Silver. *etc.* G. Ross. **W. SILVER.** **CANARIES.**—*Green*.—1 and 2, W. Silver. 3, P. Lyon. **LIZARDS.**—*Golden-spangled*.—1, W. Silver. 2 and 3, J. Taylor. *Silver-spangled*.—1 and 2, W. Silver. 3, P. B. Elmslie. **CINNAMON.**—*Jonque*.—1, 2, and 3, P. Lyon. *Buff*.—1, 2, and 3, P. Lyon. **LANCASHIRE COPPY OR PLAINHEADS.**—1 and 2, W. McKenzie. 3, G. Ross. **CANARY MULES.**—*Dark*.—1 and 3, A. Gordon. 2, W. Silver.

ANY AGE.—BELGIANS.—*Clear or Ticked Yellow*.—1, J. Calder. 2, P. Lyon. 3, R. Sutherland. *etc.* A. Barnett (2). *Clear or Ticked Buff*.—1, A. Barnett. 2, W. Silver. 3, J. Fraser. *etc.* A. Barnett, Miss I. Watt. *Variegated*.—1 and 3, R. Sutherland. 2, J. Watson. **SCOTCH FANCY.**—*Clear or Ticked Yellow*.—1, J. Taylor. 2, D. Langlands. 3, A. Black. *Variegated*.—1, C. Gouck. 2, J. Philip. 3, J. Fraser. *etc.* J. Cronar. **NORWICH.**—*Clear Yellow*.—1, J. Blair. 2 and 3, D. Langlands. 3, P. Lyon. *Clear Buff*.—1, J. Balfour. 2, D. Langlands. *Ticked, Unevenly-marked, or Variegated Yellow*.—1, D. Langlands. 2, J. Balfour. 3 and *etc.* W. Silver. *Ticked, Unevenly-marked, or Variegated Buff*.—1, P. Lyon. 2 and 3, W. Silver. *Crested Buff or Buff-marked*.—1, J. Taylor. 2, J. Scorgie. 3, P. Lyon. *Clear Yellow, non-cayenne-fed*.—1, J. Balfour. 2, J. Bisset. 3, H. B. Gibb. *etc.* J. Bisset, Capt. J. Gordon. *Clear Buff, non-cayenne-fed*.—1, J. Bisset. 2, D. Edwards. 3, J. Scorgie. *etc.* A. Gordon. *Ticked Evenly, Unevenly, or Variegated Yellow, non-cayenne-fed*.—1, C. Greig. 2, C. Chalmers. 3, J. Murray. *etc.* J. Balfour. *Ticked Evenly, Unevenly, or Variegated Buff, non-cayenne-fed*.—1, F. Young. 2, D. Edwards. 3, A. Gordon. *etc.* H. B. Gibb, J. Hood, J. Murray. **CANARIES.**—*Green*.—1, J. Hood. 2, A. Anderson. 3, P. Lyon. **LIZARDS.**—*Golden-spangled*.—1 and 2, W. Silver. 3, J. Taylor. *Silver-spangled*.—1, 2, and 3, W. Silver. **CINNAMON.**—*Jonque*.—1 and 3, J. Balfour. 2, P. Lyon. *Buff*.—1, 2, and 3, J. Balfour. **LANCASHIRE COPPYS.**—1 and 3, J. Balfour. 2, G. Watson. **LANCASHIRE PLAINHEADS.**—1, J. Bisset. 2 and 3, J. Balfour. **ANY OTHER VARIETY OF CANARY.**—1, P. Lyon. 2 and 3, J. Taylor. *etc.* W. Silver (2). **CANARY MULES.**—*Marked or Variegated*.—1, Hon. Mrs. Arbuthnot. 2, (Capt. J. Gordon. 3, J. Taylor. *Dark*.—1 and 2, J. Bisset. 3, M. Gove. *etc.* C. Gouck. **GOLDFINCHES.**—1, A. Knowles. 2, J. Scorgie. 3, J. Cronar. **BULLEFINCHES.**—1, A. Black. 2, W. Silver. 3, J. Napier. **SISKINS.**—1, W. Silver. 2, P. Ogilvie. 3, J. Mitchell. **LINNETS.**—1, P. Lyon. 2 and 3, G. Dean. *etc.* G. Chalmers. **BRITISH SONG BIRDS.**—*Any other variety*.—1, P. Lyon. 2 and *etc.* J. Smith. 3, W. McGregor. **MACAW, COCKATOO, AND ALL KEY BIRDS.**—1, J. H. H. 2 and *etc.* A. Cameron. 3, J. Lyle. **FOREIGN BIRDS.**—*Any other variety*.—1, W. Silver. 2 and 3, A. Middleton.

SPECIAL PRIZES.—Gold Medals: Messrs. W. Silver, J. Calder, and J. Blair. *Silver Medals:* Messrs. Duncan, J. Blair (3), W. Silver (2), J. Balfour (2), C. Gouck, Hon. Mrs. Arbuthnot, and A. Knowles; A. Barnett and R. Sutherland being equal.

VARIETIES.

We are glad to announce that our staff has been strengthened by the addition of Mr. O. E. Cresswell of Earley Wood, Bagshot, who will contribute articles on poultry management and exhibiting.

— **TO MAKE A NEST EGG.**—Take an ordinary hen's egg, break a small hole in the small end about three-eighths of an inch in diameter, extract the contents, and, after it is thoroughly clear inside fill it with powdered slaked lime, tamping it in order to make it contain as much as possible. After it is full seal it up with plaster of Paris, and you have a nest egg which cannot be distinguished by the hen from the other eggs, and one which will not crack like other eggs by being frozen.—(*Scientific American*.)

— **A GOOD AUTHORITY** writing on dairy farming states that with a good stock of cows, and the details wrought out in a proper manner, the dairy should pay as well, if not better, on many farms than any other system of farming—the present prices and future prospects of the produce being all in their favour, having less foreign competition to meet with in the market than any other product of the farm.

— **ACCORDING** to statistics compiled by the French Government, the average cereal product of Europe is 4,995,000,000 bushels. Of this Germany furnishes 742,500,000 bushels, and Austria 450,000,000 bushels. The latest reliable estimates for the United States give the cereal yield of the present year at 1,600,000,000 bushels. This, says an American contemporary, shows that the United States has at last taken rank as the greatest cereal-producing country in the world. Russia has in the past held the palm; this year she will fall considerably below. The American average export of grain and flour for some years past has been about \$100,000,000. This year it will considerably exceed this sum. This year the American wheat export alone will reach more than 80,000,000 bushels of wheat. Last year it was 52,697,899 bushels,

and in 1868 only 14,597,585 bushels. Such progress as is here recorded cannot fail to exercise an important influence on this country.

— **THE** following estimate of the extent of the disease existing in the potato crop of 1877 has been furnished to the *Mark Lane Express* by 396 correspondents from various districts in every county in England and six counties in Wales:—

1877.	No. of Districts.
Free from disease	4
One-eighth diseased	28
One-fourth diseased	70
Three-eighths diseased	51
Half diseased	132
Five-eighths diseased	84
Three-fourths diseased	39
Seven-eighths diseased	15
Failure	3

Total advices..... 396

The estimate for the preceding year was as follows:—

1876.	No. of Districts.
Free from disease	25
One-eighth diseased	49
One-fourth diseased	93
Three-eighths diseased	63
Half diseased	91
Five-eighths diseased	42
Three-fourths diseased	30
Seven-eighths diseased	3
Failure	0

Total advices..... 396

— **IN** relation to breeds Mr. E. H. Seward, an experienced American dairy farmer, has said the Devons as a class are not deep milkers, yet individuals and especially grades were good. The Ayrshires will give a large quantity of milk for the food consumed. They do not transmit their good qualities in crossing. It is an objection. The Alderneys or Jerseys give rich milk, but not a large quantity. They are good butter cows, but not well adapted for cold districts. We want quantity in our dairies for making cheese. The Short-horn really spring from the Dutch or Holstein, and the old Teeswater. Much of their value to-day as dairy cattle he believed was due to this Dutch blood. They were years ago known as great milkers. The Hollanders are good judges of milking cattle. They want a good girth, good hind quarters, a short neck, and fine development of udder and milkveins. [For a small establishment we know no breed to surpass the Kerry for dairy purposes. They are far hardier, and give more milk, and nearly of equal quality to the Alderney.—*Eds.*]

— **THE** liquid voidings of animals are worth more—good authorities say one-sixth more—pound for pound than the solid excrements, and are saved with greater care by the best farmers and gardeners. All the leaks in the stable are not in the roof; those often in the floor are quite as objectionable, and are the cause of a great deal of wastage. Make the stable floor tight, with a gutter at the heels of the stock to carry off the urine to an adjacent tank, or into a heap of muck or other absorbent.

— **WHEAT** culture in olden time, as described by Fitzherbert in the reign of "bluff King Hal," was carried on much in the same way as at the present day. Neither were the farmers of those times ignorant of some of the shrewd practices of those of to-day, nor of the reasons for them. For instance, under the article "To falowe," Fitzherbert says: "The greater the clottes (clouds) the better wheate, for the clottes keep the wheate warme all wynter; and at March they will melte and breake and fal in many small peces, the whiche is a new dongynge and refreshynge of the corne."

— **FOWLS** drink water freely, but they know just how much they need, and when they have access to the fluid clean, sweet, and fresh, they imbibe no more than is good for them. It is, therefore, unnecessary to mix your dough too thin and sloppy at the morning feeding. Have the meal well scalded, and feed the mixture to the stock stiff and dry comparatively. This feed should generally be composed of both corn and rye meal, with vegetables—say one-third each. In our own practice we have found this preferable both for the birds and as an economical provision for the old or the growing stock. A little pepper occasionally in this dough, and always salt, will improve the mess.—(*Poultry World*.)

— **A NEVADA** shepherd counts his sheep by means of a dial plate register. They are driven singly over a narrow platform, and as each steps off the dial marks the number.

— **THE** potato crop of America is estimated at 200,000,000 bushels. These are 225 factories reported in the eastern States engaged in the manufacture of starch from potatoes. These consume about 3,000,000 bushels annually.

— **THE** farmer who calculates to make his living by farming cannot afford to lose a knowledge of the best methods in practice, and he cannot hope to learn these methods by his own experience, even if that experience be a rich one. He cannot afford to lose

the money which he certainly will by selling his produce blindly, without knowing the conditions of the market and the things which affect its rise and fall. If he is successful without reading, it is because he gets his information from those who have taken advantage of agricultural literature and have turned its teachings to profitable account.

CHICKWEED, says the *Portland Press*, is an excellent barometer. When the flowers expand fully there need be no fear of rain for several hours. Should it continue in that condition no rain will disturb the day. When it half conceals its miniature flowers the day is sure to be showery, and if it entirely shuts up, or veils the white flower with its green mantle, let the traveller put on his great coat.

BEE-KEEPING IN KANSAS.

THE following extracts from a letter just received from an old neighbour of mine, who has formed a new home for himself in Central North America, appears to me sufficiently interesting to find a place in this Journal:—

"This is a great country for bees, and the bee-keepers 'go into it' largely. There are two close to me with 100 or 150 stocks each, and many with fifty downwards. I do not see any very great improvements upon the plans we adopted, except that the bars we formerly used are changed into entire frames, and the hives are deeper and the supers larger than ours. They quite despise the use of any covering over the combs or protection over themselves. They simply take off the lid or outside cover of the hive and the bees are all exposed to view. Of course, they are first treated to a plentiful dose of smoke made from a bundle of cotton rags tied-up like a large squib or rocket, about 8 or 9 inches long and an inch or so in diameter, and they blow the smoke amongst the bees until they are stupefied or nearly so, and then commence handling the combs, which they take out and examine, remove or exchange, according to the object aimed at.

"Their mode of increasing stocks is principally by taking about four or five frames out of a full stock and putting them into an empty hive, and, of course, filling-up the other hive with empty frames. All you have to attend to is to see which hive gets the queen, and that the other is in a forward state to soon hatch-out one. The two hives are thus soon made complete, and in a good season you can repeat the operation, thus making four hives out of one.

"The other plan followed is the nucleus one—namely, by cutting-out a queen with an inch or two of comb round her, and fitting it into another comb with three or four frames full of bees. This plan answers admirably if fairly well done, but the bee-dealers are too prone to sell you a swarm made-up of a nucleus queen and only, perhaps, a couple of frames sparsely sprinkled with bees, and the rest of the hive empty frames. It ought to be done pretty early in the season.

"The only other modes are the natural ones of swarming and drumming. The former they cannot altogether help; the latter is often practised, particularly by those who use the extractor. Bee-masters do not like parting with their combs, they extract all the honey from them during the honey-making season, and put back the combs to be refilled, and they do this with the combs several times, taking care to keep well within the limit of the honey gathered, so as not to leave the bees with empty combs at the close of the season. It is, of course, an admirable plan, as you are ready at the commencement of the season to place your supers on the hives with all the combs ready made.

"Extracted honey sells for 25 cents, or 1s. per lb., and honey in the comb at the same price—it is a matter of calculation. The supers are large, the same in size as the hives themselves, but not so deep. The ordinary dimensions of hives is 14 inches square in the clear, a 14-inch cube, the frames about a foot deep, and an allowance is made in the width for the bees to travel all round them say a quarter inch on each side. The supers are about 7 inches in the clear in depth. The same top or cover fits both hive and super, and when the super is removed it goes over the hive.

"The Californian supers are of the same depth, but two go to the hive, simply made-up of frame with no top. They sell the super, comb and all, for 25 cents per lb. You buy the super with the honey.* The wood of each super weighs about a pound. Eight frames are tacked together with no top or ends. The bees come up through the bars. It is a good, easy, and cheap way of making them. The shop people cut off a frame or two for their customers, about 1½ lb. in each frame. If you get off four of these supers from your hive in the season it is not bad work—about 48 lbs. to sell. Two of them go nicely in your top hive, which you would otherwise use for a super. Many do so, and take their top hives or supers to market and get them back when the comb is all sold. I prefer the Californian plan. The extractors are too expensive.

..... I think the price of one of them is 8 dollars.

"The hives are all made very thick, an inch or 1½-inch stuff, the working holes 4 or 6 inches long. Some keep them in cellars all the winter, others keep them out; the latter is getting more into

vogue, as the removal entails much labour and cellars are too apt to be damp. Moths, large spiders, and the maple worm or "miller," are the great plagues, and oblige you to open your hives more frequently than you otherwise would. The black spider is a huge fellow, and soon makes havoc among your bees. I cannot handle my hives in the cool way many do—barehanded without dress or anything, but from practice they think nothing of it. I still keep to my bee-dress and indianrubber gloves.

"The profit of the business is very remunerating. Many clear 2000 or 3000 dollars a-year. It is better than farming if the season is good. I am only in a humble way, but I am preparing to enlarge my operations next season. There is nothing wonderful in the construction of any of their hives. Those who make a business of it do it in the cheapest and simplest way."

My friend sends me a diagram of the bars in use in his neighbourhood. They differ from ours only in having a projection of the side of the frame at bottom, meeting a circular projection at the side of each adjoining frame, to prevent the combs "rattling" or swaying backwards and forwards.—B. & W.

OUR LETTER BOX.

ARTIFICIAL BIRD'S EYES (J. H.).—Apply to Mr. Gardener, Naturalist, Oxford Street, London.

SCURFY FACE IN SPANISH FOWLS (J. C.).—It sometimes comes because the birds are out of health, and sometimes from an injury such as having been picked by the other birds. The treatment is to keep it moistened with sulphur ointment. In any case the suffering bird should be removed from the others, and the face frequently washed. While under treatment avoid any heating food.

SEX OF GOSSINGS (E. W. B.).—Your question is a difficult one to answer; there are many methods but difficult of description. In the gander appears a divided purse or egg-bag so to speak, whereas in the goose it is a single pouch. It is an old-fashioned plan in the fan country to shut up the Geese intended for selection for stock in a pigsty, and to throw in a little dog suddenly. The Geese retreat head up, the ganders advance hissing, head and neck extended.

CHLOROFORMING BEES.—"A. T." would be obliged by "H. C." stating how he placed the chloroform under the bees, and how long it requires to stupefy them.

REMOVING HIVES (A. B. C.).—Before you send your hives off by rail nail them to their boards so that they cannot slip any way on the journey. Send them singly and in their natural position, without packing of any description. At this season no ventilation is necessary during the transit. In spring and summer months ventilation through fly-proof is necessary. Of course the doors should be closed. Seed of *Melilotus leucantha* may not be mentioned in catalogues, but surely it can be had in good seed establishments. Write to one of the two good houses you have mentioned.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.				IN THE DAY.					
	Barom. at 9 A.M.	Hygrom- eter.	Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		Rain.	
					Max.	Min.	In sun.	On grass.		
1878.										
Jan.										
We. 2	30.344	44.5	44.5	W.	39.5	48.3	32.1	55.5	30.	0.090
Th. 3	30.378	44.7	43.8	S.W.	41.0	46.0	48.3	60.5	38.5	0.333
Fri. 4	30.915	46.8	46.4	S.E.	42.1	47.5	44.6	48.0	40.4	0.198
Sat. 5	30.169	43.6	43.6	E.	42.9	45.4	41.7	45.0	41.7	0.074
Sun. 6	30.084	44.4	44.0	N.W.	42.9	49.0	42.1	62.3	36.0	0.010
Mo. 7	32.591	37.9	36.9	N.W.	43.1	42.9	36.5	65.4	32.3	—
Tu. 8	32.784	37.0	36.1	N.N.W.	41.0	43.8	34.2	71.6	28.6	—
Means	30.011	42.6	42.0		41.6	46.3	39.3	57.8	34.4	0.076

REMARKS.

- 2nd.—Close damp morning, very dull damp day; overcast at night.
3rd.—Fine spring-like morning, colder and dull in afternoon; wet at night.
4th.—Dark and gloomy, with rain at intervals all day.
5th.—Foggy and dark in the morning; very dull day, with slight rain occasionally.
6th.—Dull morning, brighter after 1 P.M., a little sunshine in afternoon; fine evening; slight rain about 11 P.M.
7th.—Very fine morning, rain commenced at 1.30 P.M., but only a few drops fell.
8th.—Dull morning, slight rain at times, with intermediate sunshine; clear and cold in evening.
Rather warmer than most weeks previous; especially close and muggy from the 2nd to the 6th.—G. J. SYMONS.

COVENT GARDEN MARKET.—JANUARY 9.

Our Market does not call for any remark beyond last week's report.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½	sieve	2	sto 5 0	Melons.....	each	0	sto 0 0	0
Apricots.....	dozen	0	0	0	Nectarines ..	dozen	0	0	0
Chestnuts.....	bushel	10	0	20 0	Oranges.....	½	100	3	0
Courants	½	sieve	0	0	0	Peaches.....	dozen	0	0
Black	½	sieve	0	0	0	Pears, kitchen..	dozen	1	0
Figs.....	dozen	0	0	0	dessert	dozen	3	6	12 0
Filberts.....	½	lb.	0	6	0	Pine Apples....	½	lb.	1
Cobs.....	½	lb.	0	6	0	Piums.....	½	sieve	0
Gooseberries ..	bushel	0	0	0	0	Raspberries....	½	lb.	0
Grapes, hothouse	½	lb.	1	6	8	0	Walnuts.....	bushel	5
Lemons.....	½	100	6	0	10 0	ditto.....	½	100	0

* These are evidently like our sectional supers.—B. & W.

WEEKLY CALENDAR.

Day of Month		Day of Week	JANUARY 17—23, 1878.	Average Temperature near London.			Sun Rises.		Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.			
Day.		Night.	Mean.	h.	m.	h.	m.	h.	m.	h.	m.	Days.	m.	s.			
17	TH	Royal Society at 8.30 P.M.	42.5	30.6	36.6	8	0	4	21	2	16	7	10	14	10	26	17
18	F	Philological Society at 8 P.M.	42.6	31.3	36.9	7	59	4	23	3	41	7	53	15	10	44	18
19	S		42.9	30.4	36.6	7	58	4	24	5	13	8	24	16	11	2	19
20	SUN	2 SUNDAY AFTER EPIPHANY.	42.4	31.0	36.7	7	57	4	26	6	46	8	46	17	11	30	20
21	M	London Institution at 5 P.M.	43.6	32.4	38.0	7	56	4	27	8	16	9	4	18	11	37	21
22	TU		44.4	32.7	38.4	7	54	4	29	9	44	9	18	19	11	53	22
23	W	Society of Arts at 8 P.M.	44.8	32.9	38.8	7	53	4	31	11	10	9	32	20	12	8	23

From observations taken near London during forty-three years, the average day temperature of the week is 43.5°; and its night temperature 31.6°.

KEEPING GRAPES—DEW.—No. 1.

R. D. THOMSON has demonstrated on page 34 that moisture in the borders is not powerfully inimical to late-hanging Grapes, for he has stated that the rainfall on the Vine borders at Drumlanrig amounted last year to the formidable total of 67½ inches! What do "dry" Grape-growers think of upwards of 5½ feet of water falling from the clouds, yet no wooden shutters being provided for sheltering the roots? It is tolerably clear either that the Vines at Drumlanrig receive too much water or those at many other places do not have enough, for certainly there are many gardens where the rainfall is not half that of Dumfriesshire, yet in the "dry" districts shutters are often deemed essential for protecting the Vine roots from "excessive" wet. The question, however, is one of drainage. If the water cannot percolate freely through the borders, leaving the soil sweet, 30 inches of rain become excessive; while, on the other hand, when the drainage is really efficient, more than twice that quantity of water is not only not injurious but beneficial. Much, also, probably depends on the nature of the soil.

At Drumlanrig the best evidence exists that the Vines do not receive too much water, or at least did exist when I had the privilege of inspecting the vineries, for better crops of Grapes I never saw. Not only were such varieties of Grapes that are ordinarily, and so often excellently cultivated in many gardens, in superior condition at Drumlanrig, but both Golden Champion and the Duke of Buccleuch were splendid. It is clear, therefore, that the extraordinary moisture referred to is not injurious to the growth of the Vines and the production of Grapes, and now we have evidence that it is not inimical to their preservation.

According to the testimony of Mr. Thomson Grapes keep better at Drumlanrig with its clouded skies and dripping atmosphere than they do in other districts where the rainfall is lighter and the atmosphere clearer. No one is more likely to be accurate in his statements than Mr. Thomson, and few have better opportunities for gaining experience, for his practice has been derived from a wide field extending from a point south of the fifty-second parallel of latitude in Hertfordshire to nearly the fifty-sixth in Haddingtonshire. But neither in north nor south was he able to keep Grapes with so little trouble as in the dull damp districts in which he is now so successfully working. Indeed, so easy is it to preserve Grapes amidst the woods and hills, and it may be fairly added water, of Nithsdale, that he is both surprised and perplexed at his own success, and cannot account for the singular immunity of the berries from decay. As there is a cause for every effect the duty is imposed upon gardeners to determine a "cause" for a circumstance which bears directly on a subject of considerable importance to them.

Although I have my own ideas of the chief causes that contribute to the sound and long-keeping properties of the Drumlanrig Grapes, I am not at all sanguine that I can convey them in a manner to be generally intelligible—not

because they are in any degree complex, for, on the contrary, they are extremely simple, but because I lack the faculty of that clear expression possessed by a David Thomson or a William Taylor. I will be satisfied, therefore, if I can give a "clue" for those and other cultivators to unravel and make plain, to substantiate or to demolish, according as there may be anything in the theory that I will try to advance as an important principle governing the keeping of Grapes.

It will not be inappropriate if I describe my idea as the "dew theory," because it is founded on the principle of the deposition of dew. According to the law which governs the phenomenon of dew, Grapes at Drumlanrig, when managed with that intelligence which all admit is exercised there, ought to keep exceptionally well. The circumstances which at the first glance might appear to be prejudicial to the good keeping of the fruit—I mean extreme moisture and a clouded sky—are, I think, in their very nature favourable when considered in connection with a system of management which I suspect is adopted in the Drumlanrig vineries.

A rainfall averaging 60 inches a-year presupposes an exceptionally clouded sky, a clouded sky an equable temperature, and an equable temperature an absence of dew. That is so on grass outside, why not, therefore, on Grapes inside? In order to render the matter as clear as possible it may be well to briefly refer to the principle of dew-formation. The cause of dew is cold. The temperature of the earth and bodies thereon fall by radiation and become colder than the atmosphere, the moisture of which is then condensed by and deposited on the cold surfaces, whether these are composed of grass, or wood, or iron, or Grapes. A clear air and sky promote the deposition of dew, and clouds prevent it by arresting radiation. The heaviest dews occur during a clear early morning when the surfaces have become much cooled, and especially when a clear morning succeeds a cloudy day. Dews are the most prevalent in spring and autumn, because then there is a greater difference of temperature between day and night. It is well to bear in mind those cardinal principles of dew-formation, because the subject has a direct and, as I believe, a very important influence on the keeping of Grapes; and it also affords a solution of the problem over which Mr. Thomson admits he is much puzzled.

When rains are prevalent and the nights and days are veiled by clouds for long periods, as must be the case in Dumfriesshire (where the vapours of the Atlantic which have accumulated in the atmosphere become condensed by the hills on the west coast of the island), the temperature must not only necessarily be more equable than in "bracing" districts where there are intermittent spells of clear and dull weather, but fire heat must be regularly employed in the vineries to maintain the requisite heat and to counteract the effects of the almost ever-falling rain. In this case the clouds outside and the fire heat inside prevent the Grapes becoming colder than the atmosphere, and consequently moisture, although it may be present in the air, cannot be condensed by and on the berries. It is the moisture that is precipitated on the Grapes on account of the bunches in a clear "bracing" district becoming occasionally or frequently colder than the air that is a prolific

source of decay; and sudden changes of temperature are at the root of the evil in nine cases of ten where Grapes will not keep. So far from the dull wet district of Drumlanrig being unfavourable for the keeping of Grapes, in my opinion it is, when fire heat is freely employed, specially favourable.

In a prevalence of clouds Nature has provided Mr. Thomson with a screen for arresting radiation, and this with the intelligent application of fire heat provides an equable temperature in the Drumlanrig vineries; a minimum quantity of dew then forms on the berries, and there is a corresponding minimum amount of decay. This is my solution of the mystery, and I ask that it be criticised—demolished if possible, for my only desire is that truth be established and that the keeping of Grapes may be better understood.—A NORTHERN GARDENER.

VEGETABLE CULTURE.

CHAP. III.—THE PEA.

THE Pea is a native of the Levant. The improved varieties now so commonly cultivated and so popular in our gardens originated from a very small fruiting kind which grows plentiful in a wild state there. It is within the remembrance of many when Peas were only cultivated in the gardens of the wealthy, but of late years every person possessing a garden devotes considerable space and much attention to their culture; and they are now regarded as one of the most important, because palatable and nutritious, of summer vegetables.

In all gardens Peas may be had more or less from the beginning of June until the middle or end of October. In exceptional instances they have been gathered both earlier and later than those dates, but the means taken to secure them could not be profitably adopted as a rule, and therefore need not be detailed here. In about sixteen weeks from the time the seed is sown in spring or summer the Peas are ready for gathering. For the earliest crop many are in the habit of sowing the seed in November of the previous year. In very mild localities this answers very well, but when the winter chanced to be severe we have gathered from the rows where the seed was sown in February just as early as from the November sowing. We have sown no Peas in autumn for some years, and we generally manage to gather Peas as early as our neighbours, and have full rows into the bargain.

According to the weather the earliest seed should be sown during the last week in January or the first week in February. The ground is rarely in a very suitable state for the seed germinating freely at that time, and it is a great advantage when this first sowing can be started into growth under glass. It does not require much heat to start them. A cold frame does it very well. The seed may be started into growth in two ways. One is to fill a number of 6 or 8-inch pots with rich soil, sow the seed about 2 inches from the top, and cover it with 1 inch of soil; the plants may then be placed in either a house or frame to start. They must not be watered much until they have grown about 3 inches high. Air should be gradually admitted until they will endure full exposure, after which they may be planted out.

They should be planted in a south border or in a sheltered position. The ground should be heavily manured and be dug deeply; and in planting them out of the pots it is only necessary to take a spade and make a deep notch in the ground where each row has to be placed, then turn them out of the pots and separate the growing Peas into little handfuls and plant each tuft 6 or 8 inches apart in the row. They suffer little through being transferred, and when it is very cold and windy at the time a few spruce branches on each side of the row protects them sufficiently. The other way of raising young plants is to take a number of strips of turf each about 4 inches wide, 3 inches thick, and 1 foot or 18 inches long. On the grassless side of each of these cut a notch $1\frac{1}{2}$ inch deep and 2 inches wide, lay them in rows on the surface of the border in any vinery, Peach house, or frame where the Peas are to be started into growth, then sow the seed thickly along the bottom of the notch and cover it with a sprinkling of fine soil. As soon as the seed germinates the roots run through the turf; and as soon as the plants are large enough to plant, the rows are notched in the open ground as before stated, and the strips of turves with the Peas growing in them are laid along the openings and the soil drawn round them without disturbing root or branch. This is the way we always raise and plant our early Peas, and we prefer it to any other.

At the same time as the seed is sown under cover a few rows should be put in in the open ground to give a succession.

Those sown in the open ground thus early should have the best position in the garden. A dry soil and sunny exposure is a great advantage to them. The ground should have been dug roughly some time previously to sowing. The rows of dwarf-growing kinds should be $2\frac{1}{2}$ or 3 feet apart; tall growers must be 6 or 8 feet. In preparing to sow the seed the drills should be drawn out straight, and 3 inches deep, with a draw hoe. One pint of seed is sufficient for a row 30 feet long. Peas sown during February and March may be termed early crops, and should have early positions. After the beginning of April the crops may be grown in any ordinary part of the garden. When the summer is excessively dry Peas do best in a moderately retentive soil, but in a wet season like 1877 an open soil suits them best, and it should not be less than 2 feet or 30 inches in depth. During the winter time the site on which Peas have to be grown should be roughly and deeply turned over; at the same time a liberal quantity of manure must be added, especially in the case of poor soil. The Peas may either all be grown together in one piece of ground, or a row may be placed here and there in the different quarters. We have tried them both ways, and we prefer keeping them all together, as when sown close to low-growing plants they shade and consequently injure them.

The quantity sown at one time must, of course, always be regulated by the demand, but to keep up a constant supply seed should be sown every twelve days, from March until the second or third week in July. The drills should be 3 or 4 inches deep, and the same in width. When the soil is very dry the bottom of the trench or drill should be well watered before sowing the seed, and after the soil has been covered over it the surface may be trodden with the feet. When the young plants are about 2 inches above the ground a little soil should be drawn to each side of the row with a draw hoe, and when they are 4 inches high a little more soil may be added and the stakes put in; these should be about a foot higher than the variety which they are to support is represented to grow, but the height any Pea attains depends on the character of the soil it is in. In poor dry soils it is a good plan in sowing summer Peas to dig out a trench as if for Celery, spread a quantity of manure at the bottom of it, dig it in, and then sow the seed. Dry weather has little effect on the crop when this is done, but in a wet season we have found them do worse in trenches than on the level ground. When the soil is good it is best to sow on the level, and if the plants should suffer from drought spread a layer of rich manure 18 inches wide and 2 inches deep along each side of the row. In dry times they are also much benefited by a good watering with liquid manure once a-week, which not only assists the pods in filling but has a strong tendency to prevent mildew, which is very liable to do mischief in dry weather. We have had some excellent Peas for years past on the ground where the Celery grew. After digging up the Celery the ground is simply levelled and the drill drawn above where the Celery trench was, and as the trenches are always heavily manured before planting the Celery the Peas grow most luxuriantly in them.

Amongst pests which attack Peas few are more troublesome than mice. If not looked after in time they frequently destroy the greater part of the seed. Wetting the Peas and then rolling them in red lead makes them distasteful to the mice. Chopping whins or furze small and spreading the pieces over the seed before covering with soil often prevents the mice reaching the Peas. At the same time traps should always be set near the row. Snails may be gathered with the hand, or the plants may be dusted with lime until they are 6 or 8 inches high. Birds sometimes pick the points out of the shoots while young, which stops their progress and spoils the crop. When the birds are very troublesome nets or wire guards become necessary to protect the rows. Under liberal culture caterpillars, weevils, and such-like pests give no trouble.

Of late years few vegetables have increased so rapidly in variety as Peas. Hardly a year passes without a number of new varieties being introduced, and while some prove to be improvements others are inferior to old sorts. Amongst the newer kinds Criterion (Standish) promises to be unusually good as a late Pea, and Harbinger (Laxton) is a promising early variety. Dr. Maclean (Turner) is the most productive of all the new Peas, and its other qualities are good. It is best suited for a midseason crop. The best Peas for general cultivation are:—

For Earliest Crops.—Sangster's No. 1, Sutton's Ringleader, Dickson's First and Best, William I. Dwarfs.—Little Gem and Tom Thumb.

For General Crops.—Hundredfold, Veitch's Perfection, Champion of England, Huntingdonian, Maclean's Wonderful, Carter's Little Wonder, and Laxton's Fillbasket.

For Late Crops.—Ne Plus Ultra, Maclean's Premier, British Queen, and Emperor of the Marrows.

Many more might be named in each class, but those mentioned are amongst the most serviceable for good cropping and ordinary use throughout the season.—A KITCHEN GARDENER.

BRUNSVIGIAS.

WOULD your correspondent, "H." (see page 10) kindly give us a little more succinct information as to his experience with this curious and difficult family of bulbs, as his treatment appears so different from that indicated by the habit of the plant?

The group of bulbs formerly included under *Brunsvigia* is now divided into—firstly, *Amarylises Josephinae* var. *striata*, *grandiflora*, *Banksiana*, *belladonna*, *blanda*. Secondly, *Brunsvigia multiflora*, *pumila*, *coccinea* (Kew), and some doubtful species: *marginata* seems never to have been clearly identified. Thirdly, *Boophana toxicaria*, *disticha*, *ciliaris*, *radula*, with some other uncertain species. Lastly, *Ammocharis falcata* and *coracina*.

Of these, the three first divisions comprise plants of the habit of the Guernsey and Belladonna Lilies, resting leafless, from May to September, when the flower is thrown up, followed shortly by the leaves, which make their growth through the winter and die off with the heat of early summer.

The last lot, *Ammocharis*, are summer growers, resting entirely leafless, through the winter.

I have never done much with the *Brunsvigias*, but have at one time or another cultivated all the types mentioned.

The huge *A. Josephinae* used to flower regularly every other year, rarely two years following. I have never seen *blanda*, *Banksiana*, or *grandiflora*, which seem to have gone out of cultivation. *B. multiflora* I flowered once only. I had a bulb under the name of *pumila*, but I think it was only a small specimen of *multiflora*. A plant in my collection from Kew, *coccinea*, seems distinct.

The remarkable section now called *Boophana* (Herbert) appear to be very shy flowerers. I think Mr. Leach of Clapham flowered one or two of them, and I understand from Mr. Boscawen that Mr. Tyerman has also lately succeeded with them in his fine southern climate.

Ammocharis falcata flowers freely if grown, as Herbert advises, as a greenhouse plant and removed into a strong heat about midsummer. *A. coracina*, as figured in the "Botanical Magazine," is, I think, a mere variety of *falcata*. My plants were very distinct from this both in the shape and colour of the inflorescence, while the foliage was that of *falcata*.

None of the family ever produced an offset in my garden except *A. Josephinae*, which after many years produced two and never thrived again; it, however, seeds freely.

The only kind that would appear likely to succeed, treated as recommended by "H.," would be *Ammocharis*.

I am away from home and my books, and write from old recollections, so I will ask your correspondent to excuse me if I have made any incorrect statements.—R. T. C., *Torquay*.

ARRANGEMENT OF PLANTS IN FLOWER BEDS.

"CONSTANT SUBSCRIBER" has a small flower garden consisting of two panels, each having an oval in the centre, with four corner beds and intersecting paths at the end of a terrace, close by the house, and therefore in a prominent position. It is required that the beds should be planted in summer with flowers raised from seed in spring, or that are hardy, and some few plants kept during winter in a greenhouse where space is limited and cannot be much encroached upon by "bedders"—a not unusual case, pointing to a very common want for which it is not difficult to find a remedy.

For the ovals our correspondent suggests a bordering of Ivy and a large Palm in the centre of each. As this garden is near the south coast no doubt a pair of *Chamærops Fortunei* would answer well and form a permanent feature of the garden. Failing the Palms I would fill the ovals with *Canna gigantea* major, a tall variety with bold green foliage, to which an outer circle of the dark purple-leaved *C. Warscewiczoides* would form a good contrast, lifting, thinning, and replanting them in fresh soil every third year. This plan will answer for the south, while in less favourable climates both the Palms and

Cannas must be lifted and taken indoors during winter, which is just what we wish to avoid in such small gardens as I am now writing for.

The corner beds are large, and if filled entirely with bright colours would be too dazzling. I would therefore treat them precisely as is done so successfully at Mount Edgcumbe in a flower garden in a very similar position, by making an uniform edging to all the beds of some dwarf compact-growing plant, with three or five rows of various-coloured bedding plants enclosing central groups of dwarf flowering shrubs planted thinly, with an intermixture of such hardy, tall-growing, bulbous-rooted plants as *Lilium* and *Gladiolus*, and an occasional choice *Phlox*, *Delphinium*, *Potentilla*, and other good perennials. The plan is not a common one, and those who have not seen it can hardly imagine how pleasing is the variety, relief, and brightness which it imparts to a design. Seen as I saw it in the most select position in the garden of a nobleman it impressed one as being so beautiful, so light and graceful, and so natural withal, as to be infinitely preferable to carpet bedding and all other popular styles, and when it is found to add to such merits the still more important one of economy in plants it must especially commend itself to amateurs and others of limited means and small houses.

Neatest of all edging plants are the *Sempervivums californicum* (calcareum) and *montanum*; both, moreover, are quite hardy, as is also the neat grey *Santolina incana*, the pretty golden *Arabis lucida*, and *Arabis alpina variegata*. Then, too, there are variegated *Vincas* and *Euonymuses*, especially the silvery-foliaged *E. radicans variegatus*—all hardy, and from seed an ample store of *Lobelia Erinus erecta* for blue, *L. Erinus alba* for white, *L. Erinus rosea* for rose, *Pyrethrum Golden Feather* for yellow, *Tropæolum Tom Thumb* for scarlet, *Tropæolum King Theodore* for dark velvety crimson, *Zinnias*, *Phlox Drummondii*, *Petunias*, and *Portulaccas* for all sorts of shades of colours from white to dark crimson, all of them continuing in full beauty almost as well as a *Geranium*; and then there are *Violas*. Perhaps the best of all, certainly as prolific of blossom and as durable as any, are *Corisandes*, pale primrose; *Crown Jewel*, rich yellow; *Mulberry*, deep mulberry; *Royal Blue*, bright blue; and *Vestal*, white.

Of dwarf flowering shrubs we have a host of beauties to choose from, such as *Berberis Darwinii*, *B. stenophylla*, *B. dulcis*, *B. Bealii*, *Mahonia aquifolium*, *Escallonia macrantha*, *Garrya elliptica*, *Cotoneaster Simonsii*, *Erica codonodes*, *E. mediterranea*, *Desfontainia spinosa*, *Daphne pontica*, *Hibiscus syriacus*, *Cytisus albus*, *Hydrangea paniculata*, *Pæonias*, *Spiræas*, *Kalmias*, *Azaleas*, and dwarf *Rhododendrons*.

I had almost forgotten *Dahlias*, of which we now have so many beautiful varieties, ranging from dwarf little bedders of a foot or two up to giants 6 feet high, and which might altogether fill the centres, but I certainly do not recommend this to the exclusion of shrubs.—EDWARD LUCKHURST.

MARKET APPLES—BARTON FREE-BEARER.

I AM at all times glad to be corrected when in error, but a correction is necessarily additionally welcome when it amounts to a confirmation. I stated on page 496 that I understood the late Mr. Pearson as having said that Duchess of Oldenburgh was a good market Apple, because of its hiding its bruises and turning out of hampers in good condition after a long railway journey. Mr. Alfred H. Pearson thinks there must be some mistake in this, yet he admits the "Russian" has "this good quality—that if stored away in hampers for four or five days the marks will almost entirely disappear, and the Apples will then invariably make more money at the market than any other sort at the same period of the year." That is really claiming more for the Apple than I intended conveying, but I do not suggest more than it merits. The late lamented owner of Chilwell certainly expressed a very favourable opinion of this valuable early Apple, and his son, I am pleased to see, confirms his late father's estimate and mine. I have grown the "Russian" and can speak to its good bearing property, its attractive appearance, its excellent quality, its tender skin, and its peculiarity in "hiding its bruises;" but I have not grown it for sale. Mr. Pearson's evidence on that point is, however, conclusive.

I did not allude to Keswick Codlin and Northern Greening because I felt their value as market Apples was sufficiently known and generally admitted.

Mr. Pearson on page 29 mentions the name of another Apple (Barton Free-Bearer) which he considers worthy of being

grown for market purposes, and he adduces good reason for his opinion; for when "fruit-gatherers of twenty years' experience never remember a variety failing," that is good testimony of its value. I never remember observing this Apple mentioned in the Journal before, and I suspect it is a local variety. I planted a tree of it nearly twenty years ago in an orchard where twenty other varieties were planted at the same time, and Barton "Free-Bearer" is now the largest tree of all, and has, I think, produced the least weight of fruit. It has now, however, commenced bearing, and judging from its appearance I have hopes that it will yet prove worthy of its name. I have never felt certain that this tree was correctly named; and since Mr. Pearson is so intimately acquainted with "Bartons," I shall esteem it a favour if he will state if the following outline description answers to the real Simon Pure:—Tree vigorous, forming a handsome yet somewhat open head without being spreading; fruit large and conical, resembling Alfriston in shape and size, yet slightly more conical than that fine Apple; skin more yellow than that of Alfriston; flesh also rather yellow and inclined to be spongy after the fruit has been gathered for some time; quality sweet rather than brisk. In use from November until March.

The tree has been long in attaining a free-bearing character, but now that it has commenced yielding fruit I believe it will be very valuable. In this respect it resembles Besspool, which I know is true, as it was obtained from Chilwell, "Bartons" having been procured from a less famous nursery.

Probably Lord Suffield has hitherto produced the greatest value of Apples since the trees were planted, closely followed, however, by Keswick Codlin, Duchess of Oldenburgh, and Hawthornden; but the fruit is apt to be blown off standard trees of Lord Suffield rather extensively. Hawthornden is much cankered, indeed almost worn-out; while "Bartons," Alfriston, Northern Greening, Blenheim Pippin, and Normanton Wonder are just arriving at their best. During the next ten years these good late kinds will probably yield a greater value of fruit than the earlier varieties that have hitherto been the more profitable. King of the Pippins has been the most profitable of the dessert varieties.—A NORTHERN GARDENER.

HOME-GROWN LILY OF THE VALLEY AND SPIRÆA.

DOUBTLESS many an amateur would like to have a few pots of Lily of the Valley in flower in winter if he could manage it without incurring the expense of buying imported roots. The following is a very good plan of bringing about such a result: About this time of the year, or indeed any time before growth commences, select some of the largest crowns from an old bed and tie them together with a piece of matting—half a dozen in a bunch—and plant the bunches a foot apart each way in common garden soil where they will have plenty of sun. During the growing season keep all straggling growths cut off with a hoe, and mulch or water if necessary. They will form good clumps for forcing in two years if large crowns were selected in the first place; less-sized crowns will take three years to come to perfection. I have never seen home-grown roots flower before Christmas so well as the imported crowns do, but they can be well done by the middle of January.

Spiræa japonica, or more correctly *Astilbe barbata*, can be grown as well in this country as in any other for forcing, and in my experience home-grown roots flower the earliest and best. They require to be planted out in rich garden soil early in the season before growth commences, and they may be lifted, potted, and placed in the forcing house in the autumn of the same year. Plants of this kept in pots through the summer are too much starved, and do not flower so early or so well as those which have been planted out.—WM. TAYLOR.

THE POTATO DISEASE.

I HAVE seen the remarks by "PERONOSPORA" on my articles "Speculations as to the Nature and Origin of the Potato Disease," but have unfortunately been prevented by domestic affliction from replying until now. I had some idea of adding to the title "With some Remarks as to New Diseases Affecting the Vine, &c.," but the Potato disease was after all the principal object I had in view. My critic appears to have been rather surprised at the articles and does not exactly see what I was aiming at. He evidently thinks I am capable of producing something better, or at all events of a more practical

nature. Those articles are only a part of my writings on the subject. I have a long essay nearly finished, in which I have approached the subject from the more practical side and duly followed what he considers the usual course in making use of the writings of others. I have not investigated the subject with the aid of the microscope, but have not hesitated to refer to the experience of others in the MS. But the microscope has not done much after all to enable us to get rid of the disease. Professor De Bary looked, with people to help him, for fifteen long years for the resting spores of the Potato fungus, but was never able to find them. Mr. Smith believes that he has. Admitting him to be right, still nobody knows how long they live or where they pass the winter.

With regard to diseases always being produced by infection my critic mistakes me. I did not mean to infer that all were so, but only some. The nature and origin of zymotic and other infectious diseases is, however, rather a difficult subject and not very profitable; besides, I have sufficient amusement at present with the Potato disease, *Oidium Tuckeri*, &c.

My critic is rather in doubt whether the disease had ever been attributed to insects, but it has; in fact it is difficult to say what it has not been ascribed to. Its origin has been attributed to insects, worms, and even snails. Mr. Henry Jenner, M.D., F.L.S.—a descendant of the immortal Jenner I suspect—wrote to a contemporary, "I suppose the cause may have originated from minute or animalcules flies spawning or depositing their eggs on diseased parts of the Potato haulm, which upon hatching the larvæ or young produced descend or creep down and enter into the Potatoes, particularly those inclined to or begun to rot or become diseased from damp or wet, &c."

Mr. A. Smee, F.R.S., published a wonderfully got-up book, which had the honour of being dedicated to the late Prince Albert, to prove that it was an insect, which he named the *Aphis vastator*, had done all the mischief. He believed that the first appearance of the disease in a healthy and previously undamaged plant was always subsequent to the visit of the destroyer, &c. These opinions were fairly met at the time, but I believe that Mr. Smee held them to the day of his death. I have no faith in the insect theories myself, and insects are not referred to in the "Speculations" with that idea; it was merely to show that new diseases, so called, had suddenly appeared and caused great loss among the Vines, and that the origin of these was apparently shrouded in mystery, and might have still remained so if they had been sufficiently minute to escape observation, whilst at the same time their presence here might be accounted for in a rational manner, and that they all of them, including the Potato disease, seemed to point to one country as the source from which they were derived.

With regard to spontaneous generation "PERONOSPORA" thinks me in error in attributing to Professor Tyndall a belief in this. What I said was, Professor Tyndall would have to try those experiments a long time before he convinced me. I have not the pleasure of his acquaintance and do not know what his private views are, but have seen reports of his investigations, and unless I am very much mistaken they led him at one time to be inclined to believe in it; in fact it was only a week or so ago that he published his final conclusions against it. How did I arrive at my conclusions? Did I carry out a series of experiments? No, I did not make any; I am quite satisfied with the investigations of Professor Tyndall, they could not have been in better hands. I did not believe in it, because it is contrary to common sense for something to come out of nothing; besides, I have read of experiments by others, and seen often, where spontaneous generation was brought in aid to account for certain phenomena, they were afterwards accounted for in a more rational manner.

"PERONOSPORA" does not care very much for the general public. Now I do. It is for them I write, and I want every reader of this Journal to have a fair knowledge of the Potato disease if they have not already; so that we shall no longer have letters written ascribing its origin to degeneracy of the tuber, injury by storing, &c., things which my critic dismisses in a body as no longer worthy of consideration.

With regard to origin, there are various ways of looking at the subject. One is, some people speak about the origin when they mean the cause of their little patch of Potatoes being attacked by the disease; another is, what was the cause of the first British Potato being attacked? These points are disposed of in the essay. The third and most interesting is the one referred to in the "Speculations." From the northern exten-

sion of certain birds, animals, and plants I was led to suppose that the fungus might also have extended northward, so that the disease might after all have existed amongst the wild plants of the *Solanum* family in the neighbourhood of Colorado; but this was theory only. Whether the facts will bear out the theory I am endeavouring to ascertain.—*AMATEUR, Cirencester.*

ROSE SHOWING.

I AM an amateur growing a few Roses, but desirous of growing more and becoming an exhibitor. I therefore want to know what Roses to buy. The Rose election list tells me what sorts, but I am in doubt as to how many sorts and how many plants of each to buy, and to my surprise the Rose Journal only increases my perplexity.

I first of all turn to one of "WYLD SAVAGE's" articles, and as I have but a slender purse I am horrified to read that an intending exhibitor "will require at least twenty of each sort;" but on coming to another article by the same gentleman I find that "a man who wishes to show twenty-four trebles well ought to have about fifty good plants of thirty sorts," or one plant and a half instead of twenty of each. Then comes Mr. Curtis, who says, "Every amateur who exhibits in the class for forty-eight must grow at least seventy-two of the best exhibition flowers to meet the vicissitudes of our seasons. . . . Amateurs should grow nearly double the number of varieties they intend to exhibit, to be ready for any season." Lastly, Mr. Bensted says I should have a different number of each of the first twenty-four sorts in the election list, and begins with one dozen of Baronne de Rothschild, and ends with twelve, eighteen, and twenty-five dozen each of Louis Van Houtte, Emilie Hausburg, and Horace Vernet.

Now, which piece of advice am I to follow? The question in my mind is, If I procure three plants each of the first fifteen sorts in the election list, shall I be safe for showing twelve single trusses at two or three of the metropolitan shows next summer? By inserting this in the Rose Journal I have no doubt you would elicit information that would be of great service to me and many other small growers.

There is one other matter connected with Rose-showing that I am tempted to say a word about. In an article about the show at the Aquarium "WYLD SAVAGE" wrote—"I was just saying to my man, Wire this Rose, will you?" &c.; and in last week's number Mr. Peach in his interesting article speaks of "heads of Tea Roses well wired to bits of stick," &c. Now it seems to me that this is very like cheating, and ought to disqualify a stand, for it enables a man who knows how to do it to make his Roses appear better than they are, and so another man whose Roses are as good or better, but who exhibits them as cut from the tree, is passed over in favour of the artificially improved blooms. This ought not to be.—*A LOVER OF ROSE SHOWS.*

WATERCRESS IN FRAMES.

SWEET crisp Watercress is always welcome on the breakfast table during the winter months, therefore a few remarks on its successful cultivation will not be inopportune. I have been gathering at the rate of three bunches of useful Cress daily from a two-light frame for the last three months, and could now gather twenty or more bunches if needed. I find that Watercress is esteemed more than all other salads at this time of the year, and fortunately none of them can be produced more easily.

About one-third of the frame mentioned is filled with plants in 24-sized pots, which are placed in teakale-pot lids turned upside down; a little shingle is placed in the bottom of the pans, which are sunk in ashes to keep them firm, and they are then filled with water (rain water I find the best), which is replenished as it wastes. A second batch was grown in 48-sized pots, which were placed in some old evaporating troughs, which answered admirably. Shingle was placed in the troughs to stand the pots upon, and the troughs were filled with water as before mentioned. The remaining portion of the frame was filled by pricking Cress out in soil, which was merely placed upon the ashes.

I found the 24-pots the most productive, although the Cress from the 48's was the first ready for gathering, being a week or ten days earlier than that pricked out in the frame; but the latter forms a good succession and is more productive than the former. I shall certainly adopt the planting-out system more extensively next autumn, for I believe the Cress to be

better flavoured than that grown in pots. I do not suppose that this system would answer in the summer months, as it would be difficult to provide enough moisture to give satisfaction.

The position of the frame is on the north side of a Thorn hedge about 4 feet 6 inches in height, which increases in height as the summer advances, which is just what is wanted for affording shade.

The soil I employ for pricking out the Cress in the open frame is composed of very strong loam with a small admixture of decayed manure pressed rather firmly to hold the water as long as possible. For pots I use a compost made lighter by adding decayed leaf soil and a little river sand. The worst enemy I have is the slug; I, however, manage to keep them pretty well at bay by placing a little salt round the base of the frame outside.

I find the browning of the Cresses depends chiefly upon the amount of air and light given during the growing period. In favourable weather the lights are tilted about an inch at the back, which is not allowed more than four hours in the middle of the day during the winter. As the temperature increases more air is admitted after the cuttings are established, but the frame is closed early in the afternoon, giving a thorough watering overhead. Those of your readers who have not tried the cultivation of Watercress under glass would do well to give it a trial and let us know with what results through the Journal.—*J. P.*

HINTS ON GROWING VEGETABLES.

MY garden owes much, very much, to our Journal, and it is in the hope of repaying to others some of the pleasure and profit I derive from the perusal of that eagerly-looked-for item of Friday's post that I venture to send the following "hints from experience," which I have found valuable in past seasons. First let me say (what I wish all, even Messrs. Luckhurst and Abbey, would state at the top of their papers) that the soil is a stiff clay, the land being well drained but very exposed. I have it dug with plenty of old stable manure as soon as ever the crops are off, and before the winter rains make working impossible, and let it lie rough till spring. Secondly, I never care to sow anything before the last week in March or the first fortnight in April, and when I do I attend to the following points, which I find very important.

Peas.—Soak the seed for four or five hours in milkwarm water. If the ground be rough work up a strip a foot broad and the length required for the row to a depth of 2 inches with a spade, as if chopping meat, until it is quite fine; then remove 1½ inch of the soil all down the row for a spade's width (7 or 8 inches). Work up the bottom 1 inch as before, and sow your Peas all over this broad trench 1½ to 2 inches apart. Cover with the soil which was removed and put on wire protectors, banking up their sides with soil. N.B.—Do not sow after June 10th. I grow 100 yards of Peas every year, and find this the surest and best way.

Celery.—Sow in April in fine soil. Plant out during the last week in June or early in July in trenches 1 foot wide, plants 7 inches apart; place pea wires across the trenches, and cover with mats till established. Fill in the trench during August, and about 20th September wrap the plants with brown paper secured by a strip of bast in a single knot. Earth-up to within 6 inches of the top at once, and you will have a first-rate crop. The trenches should be a foot deep with 4 inches of good manure at the bottom, and just a sprinkling of earth to keep it moist.

Strawberries.—Take runners off August 10th, or as soon as ready. Plant in a nursery bed. Choose a piece of ground which has been cropped with Potatoes for your bed. Manure it well, and in the beginning of October put in your plants. Let the rows be 2 feet apart and the plants 1 foot in the rows. When the bloom is set mulch with clean straw, and in the autumn cut off the leaves, except half a dozen at the top, and dig in a good dressing of well-decayed manure. The first season the crop will be fine but not large, the second year Black Prince will give a quart per plant, and British Queen berries, which cannot be beaten for size and quality, 45 quarts per hundred plants.—*A YORKSHIRE AMATEUR.*

ZINC LABELS.

I QUITE agree with "AMATEUR" in what he said last week about zinc labels. Many years ago—more than thirty—I planted an orchard of pyramid trees, all of which I named with zinc labels suspended by copper wire. In little more than a year

I saw them begin dropping so rapidly that there was a risk of my losing the names of the trees altogether. As the labels were made of long narrow strips of zinc I bent them round the side branches of the tree like a ring, allowing the ends to touch by their edges, so that when the branch grew so much as to close up the ring, the latter continued to expand with the size of the branch, and these labels are on the trees now. The cause of labels that are attached by copper wire so soon dropping is the result of galvanic action set up between the two metals, and the zinc is decomposed. Zinc by itself has no injurious effect on the trees.

The names were written on the labels with metallic ink, which is transparent when used but immediately turns black. The names are now as black and distinct as they were the first year after they were written, which, to be precise, is thirty-two years ago.—A COUNTRY DOCTOR.

REIGATE CASTLE.

AMONGST the many who whirl past Reigate by the Brighton express, or plod past it much more leisurely by the loop line to Reading, perhaps few are aware of its interesting Castle, placed at the head of the noble Holmesdale valley—"Holmesdale, never won, never shall," as the men of Kent assert of it. The position before gunpowder must have been strong and important; now it is completely commanded by hills on either side. This was one of the many castles belonging to the first Earl of Surrey, better known as De la Warrene, who married H.R.H. Gundrada, daughter of William the Conqueror, whose remains repose at Lewes. "To earth a Martha and to heaven a Mary," as her Latin epitaph still tells us. These great people and their powerful descendants appear to have owned a large portion of the county. Their armorial bearings yet survive in certain places of much less dignity: blue checker signs to wit. However, they are the rightful emblazonings now of Surrey, according to the old antiquarian legend:—

"The true arms of Surrey to have and to hold
Are the famed Warren checkers of blue and of gold."

The Castle now is one of the most charming spots imaginable. In the very centre of the Earl's good town, only a step out of the High Street, is a series of well planted winding walks with grassy slopes, and, on the centre of what was the tall keep once is now a model town Rose garden, evidently the most attractive feature of all.

Through the great liberality of Earl Somers, Reigate's Earl of the nineteenth century, Holm Castle, as it used to be, has been made over to the citizens, and is now heavily garrisoned with infantry of another kind, delighting in those formidable war chariots—perambulators! It is a paradise of nursemaids and their charges, and at certain hours young Reigate in general. On the Earl, some years ago, making over the site to the town authorities, the grounds were tastily laid out. They are kept up at public expense, and most liberally thrown open all day long to the public. On the top of the keep is a wide grass platform with exquisite panoramic views; underneath is the Baron's Cave. This is excavated out of the famous white sand—"Reigate white sand, none such in England." In this large and safe retreat the barons of England are said to have premeditated the Magna Charta, to which their false monarch shortly after affixed his reluctant signature at Runnymede. Murray says this could not have been so, for that Earl Warren was a friend of the king's. People, however, who spoil legends should never be credited.

I apprehend the Lady Gundrada would not be displeased if she could revisit her Castle. Certainly she would think there had been an advance made in Roses. In that delightful circular Rose border on the top of the keep all the new Roses are to be found, and, what is perhaps better still in our rapid days, all the best of the old Roses. All honour to Reigate's Corporation and their efficient representative in charge of the Castle.

A less attractive epitaph than that of H.R.H. was till lately to be seen in the neighbouring cemetery. It has, at least, the merit of plain speaking:—

"Clerk of this parish I was in sooth,
By trade a tailor, by name John Tooth.
Faults I had many, you who have none
Are justly entitled to cast the first stone."

—A. C.

ÆSCHYNANTHUS SPLENDIDUS.

ONE of the brightest flowers in my stove and one of the most admired in summer is *Æschynanthus splendidus*. This genus

of plants appears to be somewhat neglected now, yet some of the species are very valuable, especially by affording cut flowers for vases for room-decoration. The plants are of easy culture; brisk heat, a very rough compost, and copious supplies of water being the chief points to be attended to, to ensure success. *Æ. splendidus*, I am told, is not a species but a variety. Can you inform me if this is correct? It is of more upright growth than any other of the family that I have grown. I consider it very beautiful, and I value it the more because it is not by any means common. It is because I think this plant is deserving of more extended cultivation that I draw attention to it. The colour of the flower is bright orange-scarlet deepening to vermilion, with purplish crimson lobes.—A. R.



Fig. 8.—*Æschynanthus splendidus*.

[*Æschynanthus splendidus* was raised several years ago by Messrs. Lucombe, Pince, & Co., of Exeter, by their having crossed *Æ. speciosus* with *Æ. grandiflorus*. It is one of the most free and bright of the genus.—EDS.]

GLAZING WITHOUT LAPS OR PUTTY.

ABOUT four years ago I erected a house 50 by 11 feet principally for bedding plants, glazing without laps or putty. It is everything I could wish. There is no drip, and if a pane is broken another can be substituted in two minutes in any weather. I got the idea from seeing a house at Messrs. Smith's of Dulwich, and have made a few apparently trifling but really important alterations, one of the principal in providing for water getting into the groove as mentioned by Mr. Laycock. I have every confidence in recommending this system if carried out properly. I do not care to have the panes cut to a nicety at the ends, as it is not necessary to prevent water coming in, and a slight opening allows ventilation. When painting is necessary my own men take out one or two screws in each row, and, after giving two coats of paint, replace the glass very quickly. The advantages are—there is no drip, no dirt between the laps, consequently more light, always looks clean, and easily repaired in any weather. I shall be happy to show

my house to anyone who thinks it worth while to come and see it. It would not be safe for any gentleman to put a house up unless he either saw or obtained a working plan before doing so.

In reply to J. R. Cooper, the top pane is pushed into a groove in the roof-tree to prevent water getting in there, and wedged with indiarubber so that wind cannot affect it. Two indiarubber rings are placed on each side of the panes, and a brass screw passes through into the rafter. The glass is prevented from slipping down by a screw and ring at the bottom.—J. CARTER, *Keighley*.

NOTES ON CHRYSANTHEMUMS.

AMONGST the numerous varieties of Japanese Chrysanthemums now in cultivation are to be found some of the earliest to bloom of the whole race, as well as some of the very latest, and with a good collection a longer period of bloom can be maintained than with the incurved varieties alone.

For the embellishment of vases and for house adornment the Japanese section possess this advantage over the more formal incurved varieties—that they can be cut with a longer foot-stalk, and have a lightness and gracefulness of their own, and, as a rule, carry a greater proportion of good flowers.

The incurved varieties are undoubtedly the florist's type of this flower, and when well grown are compact, even, and beautiful rounded balls, while the Japanese are grotesque, loose, and wanting in that solidity which is characteristic of the incurved type. Still, how beautiful are the trio of Mrs. G. Rundle, George Glenny, and Mrs. Dixon! so beautiful that they and others cannot be dispensed with, for they make our conservatories gay for several weeks during the darkest season of the year. As the incurved varieties have been grown so long and have received from their popularity the greatest encouragement, my intention is to note more fully the best of the Japanese varieties; for though they are yearly gaining favour, they have not as yet received the attention they deserve, and in some districts are little known.

We have recently had some valuable additions to this section introduced from the Continent, two of which will soon become conspicuous in every collection—notably, *Fulton* and *Fulgore*. *Fulton* is of the most intense bright golden yellow colour, even a brighter yellow than the beautiful and well-known *Jardin des Plantes*; it has long rounded petals of good substance, and is altogether a very attractive variety. *Fulgore* is one of the freest to bloom; it is very large and full, with long twisted petals of a fine rosy-purple colour, and very distinct. *Laciniatum* will, I think, prove another valuable variety; it is medium-sized, but fringed like a *Pink*, and of a whitish or bluish tint, and may be employed in the making of bouquets, &c. *La Nymph* possesses qualities new to this section; its habit is so dwarf and it is so free in flowering that plants not more than 18 inches in height and carrying quite a dozen blooms can be grown in 32-sized pots. Its colour is delicate peach. It is very valuable for growing in quantity for front lines in conservatory decoration.

There are several other new varieties that I have not had the opportunity of proving, and amongst them is *Peter the Great*. A good flower of this variety was shown by the Secretary of the Lambeth Amateur Society, whose good collection is grown in the very heart of London. At *Walton*, Japanese varieties were considerably above the average, one exhibitor staging extraordinary examples of *Yellow Dragon*. At *Kington-on-Thames* the increase in the numbers of exhibitors of this section was very noticeable, and new varieties were staged in great excellence. *Bronze Dragon* and *Jane Salter*, two varieties not sufficiently known, as staged by Mr. Hinnell were indeed grand. I was unable to visit the Chrysanthemum Show held at the Aquarium, where I am informed the Japanese varieties were prominent; but at *Dartford*, *Croydon*, and *Brixton* Shows they were shown very sparingly, confirming the opinion I have already expressed, that in many localities they do not receive that attention which they deserve.

James Salter, a very pleasing lilac, *Elaine*, pure white, *Fair Maid of Guernsey*, pure white with long ribbon-shaped petals, and *Fulgore* are amongst the first to bloom. The two former were fully expanded in most places this season during the last week in October. Some years they can be had two or three weeks earlier; and on Wednesday, January 2nd, I cut a box of very fair examples of *Baronne de Prailly*, rose colour changing to pink, *The Mikado*, orange yellow, *The Sultan*, rosy lilac, *Meg Merrilees*, sulphur white, and *Grandiflora*, a very late

golden yellow. Thus for a period of eleven weeks have these dull-weather flowers helped to make us gay. What other flowers can supply their place with the corresponding amount of convenience and trouble required? None. Their culture is of the simplest, and may be summed-up in one word—Attention: Attention to watering, attention to potting them into their blooming pots without allowing them to starve in their small state, attention to prevent the wind from snapping them off, and attention in placing them under shelter from autumnal frost and rains.

Aurantium, *Bismarck*, *Chang*, *Gloire de Toulouse*, *Oracle*, *The Daimio*, *Magnum Bonum*, *Garnet*, *Nuit d'Hiver*, *Red Dragon*, and *Wizard* are sorts worth adding to every collection where Japanese varieties are desired.

In concluding my "Notes" allow me to ask, Are the sections of Chrysanthemums sufficiently defined, and what should be the distinctive standards of Japanese, incurved, and reflexed? Many of our so-called Japanese varieties bear an affinity to other sections. Does not *Elaine*, although she is so chaste and beautiful, resemble a large reflexed flower? and is not *Mons. Lucien Barthère* with its golden velvety petals a real reflexed flower? while *Triomphe du Nord*, which is described in almost every catalogue as reflexed, is evidently a real Japanese flower.—J. W. MOORMAN.

ROYAL HORTICULTURAL SOCIETY.

JANUARY 15TH.

A SINGULARLY mild morning enabled tender plants and flowers being safely removed from their homes, consequently the first meeting of the year was an extremely attractive one. There was also a very full attendance of horticulturists, and the members of the Fruit and Floral Committees assembled with scarcely any absentees. The tables surrounding the Council-room were well occupied by collections of plants from the establishments of Messrs. Veitch, Williams, Bull, Wills, &c. Excellent Grapes came from *Coombe Abbey* and *Lockinge*, Apples from *Langley*, Nuts from *Chiswick*, and cut flowers (*Zonal Pelargoniums*) from *Swanley*, and *Poinsettias* from *Heckfield*.

FRUIT COMMITTEE.—Henry Webb, Esq., V.P., in the chair. Mr. Joshua Atkins, gardener to Col. Loyd Lindsay, *Lockinge Park*, Wantage, sent four very fine bunches of *Muscate of Alexandria* Grapes, evidently from the same house as those that were exhibited at a former meeting. They were, as a natural consequence, somewhat shrivelled, but in fine condition, and a cultural commendation was awarded, the silver Banksian medal having been given at the former meeting. Mr. Miller, The Gardens, *Coombe Abbey*, exhibited six large and handsome bunches of *Gros Guillaume* Grapes, the aggregate weight of which was 26 lbs. They were well coloured and of excellent flavour. Mr. Miller was awarded a special vote of thanks. Mr. Miller also sent a fine collection of Citrons and Oranges grown on the back wall of a vinery, to which a letter of thanks was awarded. A fine collection of ten varieties of dessert Oranges was sent by Messrs. Rivers and Son of *Sawbridgeworth*: *Bittercourt Orange*, *Long Orange*, *St. Michael's*, *Maltese*, *Oval Blood*, *White Orange*, *Prata* or *Silver Orange*, *Thin-rinded St. Michael's*, *Tangerine*, and *Bijou Lemon*. A first-class certificate was awarded to *Long Orange*, and a cultural commendation for the whole collection. Mr. Ollerhead, gardener to Sir Henry Peek, Bart., sent a good fruit of *Queen Pine*. Mr. Wood of *Newport*, Isle of Wight, sent a seedling Apple, which was out of condition. Mr. W. Hackin, seedsman, Taunton, sent a seedling Apple closely resembling *Blenheim*, and if distinct not superior to that variety. Mr. R. H. Tromp of *Clifton*, Bristol, sent fruit of a *Maltese Apple*, which is of a long narrow conical shape, perfectly white, and with a sweet tender flesh. It is wholly unknown in this country, and would probably not succeed in this climate. Rev. George Kemp of *Sevenoaks* exhibited fruit of *Beurré de Jonghe Pear* in excellent condition and fine flavour. It is a good bearer, and deserves to be cultivated in every garden. A letter of thanks was awarded to Mr. Kemp. Mrs. Hewson of *Redhill* sent a seedling Potato, raised from seed of *Paterson's Victoria*, which was not an improvement. Mr. L. Killick of *Langley* sent a fine collection of fifteen varieties of Apples grown in his orchard at *Langley*, which were remarkable for their fine growth, colour, and flavour, and a special vote of thanks was awarded.

FLORAL COMMITTEE.—Dr. Denny in the chair. Messrs. Veitch and Sons staged a remarkably bright collection of Orchids. Conspicuous was a plant of *Angraecum sesquipedale* with six flowers. *Cattleya Triana* was also very effective. Amongst the smaller plants a very fine example of the pure white *Masdevallia tovarensis* attracted much attention. *Lælia alba* and *L. alba rosea*, *Odontoglossum cirrhozum* in several fine varieties, also *O. Andersonianum*, *Oncidium Forbesi*, *Lælia flammula*, *Saccolabium giganteum*, several *Cypripediums*, the curious *Masdevallia polysticta*, the brilliant *Sophranitis grandiflora*, and the chaste *Pleione*

humilis completed the group. In addition Messrs. Veitch exhibited several plants of *Rhododendron Early Gem*, which is so valuable for early decoration, the dwarf plants being quite covered with pale lavender-coloured flowers. They also staged *Primulas*, a few *Palms*, and about fifty plants of densely-bloomed *Cyclamens*. A vote of thanks was awarded.

Next came an attractively arranged group from Mr. Wills. The groundwork was composed of Maidenhair Ferns with a fringe of *Lycopodiums*. The flowering plants comprised small plants of *Phalenopsis Schilleriana* and *amabilis*, *Odontoglossum Alexandræ* with very fine spikes, *Lælia anceps*, and *Cyclamens*. The taller plants were represented by *Palms* and one or two *Dracænas*. A vote of thanks was awarded.

Mr. B. S. Williams staged effective plants of *Cypripedium* insignis, a fine example of *Sarracenia Drummondii* with fifteen pitchers, also well-grown plants of *S. purpurea major*, *Cypripedium venustum*, *Dendrobium moniliforme*, *Cattleya Trianae*, and *Cyclamens*; also a dozen plants of *Solanum Capsicastrum* var., the plants being upright in growth, having dark foliage and fine berries—a capital strain. In addition to his miscellaneous collection, for which a vote of thanks was given, Mr. Williams was awarded a first-class certificate for a very elegant Fern, *Microlepia hirta cristata*. The fronds are light green, gracefully arched, all the points being divided and crested. It will prove an elegant basket Fern, for it is evidently of free growth and will flourish in an intermediate house. A similar award was made for *Dendrobium superbiens*, a distinct and beautiful *Dendrobium* of strong growth. The prevailing colour of the flowers is purple-lake, the petals being darker than the sepals and also much longer, and the whole elegantly reflexed. The growth of the plant is upright, and it evidently flowers freely, the peduncles having about a dozen flowers which are about an inch in diameter. Mr. Williams had a botanical commendation for a curious terrestrial Orchid, *Pterostylis Baptistii*, the spike being surmounted with a solitary green flower with whitish throat. It is a great curiosity and in outline bears some resemblance to a *Masdevallia*.

In contrast with the flowers a collection of *Cycadaceous* plants from Mr. William Bull occupied the opposite side of the room. These plants are both stately and elegant, and their beauty is of a lasting character. They are admirably adapted for various purposes of decoration. First-class certificates were awarded for *Zamia corrugata*, a stately plant with tall fronds and bright green leathery leaves a foot long and 3 to 4 inches broad, the surfaces being singularly ribbed or corrugated; also to *Z. lucida*, a plant of dwarfer growth, the leaves being about 6 inches long and 1½ broad. The remainder of this collection consisted of *Encephalartos villosus amplius*, *E. cycadæifolius*, *E. Ghellinckii*, *E. Vroomii*, *E. Hildebrandii*, *E. horridus multiflorus*; *Zamia mexicana*, *Z. Lindeni*, *Z. Roezli*; *Cycas Armstrongii*, *Bowenia spectabilis serrulata*, *Ceratozamia nobilis*, and *Catakidzamia Hopei*—an unique collection, which merited the vote of thanks awarded.

Mr. Ollerhead, gardener to Sir H. Peek, Bart., M.P., Wimbledon House, exhibited the finest variety that has hitherto been seen of *Odontoglossum cirrhosum*. The flowers are large with broad pure white petals and sepals, the spots being very large and of the richest maroon colour. It is extremely beautiful, indeed too much cannot be said in its praise. We congratulate a good gardener on the possession of such a valuable plant. It is the first plant that flowered out of a dozen obtained from Messrs. Veitch, and further varieties will be looked for of this free and beautiful Orchid. A vote of thanks was awarded to Mr. Ollerhead.

Mr. Heims, gardener to F. A. Philbrick, Esq., Avenue Road, Regent's Park, exhibited *Cypripedium Boxalli*; Mr. Tong, gardener to J. S. Law, Esq., Enfield Chase, *Oncidium carthagenense* var. *Klotzschianum*; Mr. Dean, *Crocus Imperati*; and Mr. Spary, *Queen's Graperies*, Brighton, fringed *Primulas*.

The cut flowers of *Zonal Pelargoniums* exhibited by Mr. Cannell, Swanley, were remarkable by their size, freshness, and beauty; indeed, finer trusses were never seen at any season. The varieties were *The Shah*, *Lizzie Brooks*, *Louisa*, *Kleon*, *Mrs. Leavers*, *Remus*, *Laura Strahan*, *Dora Charlton*, *Jean d'Arc*, *Dazzler*, *E. Davis*, and *Lord Gifford*. A vote of thanks was worthily awarded for them. A similar mark of recognition was made to Mr. Wildsmith, gardener to Viscount Eversley, Heckfield Place, for six heads of *Poinsettias*, which were not more noticeable for their size and the great number of bracts than for their brilliant colour and the rich dark green foliage. They were excellent examples of good cultivation.

From the Society's gardens at Chiswick came plants of *Senecio Ghiesbreghtii*, which attracted considerable attention. They were about a foot high, with large *Solanum*-like leaves a foot long and 7 or 8 inches in diameter, each plant having a head more than a foot across of bright orange *Grouse*-like flowers. When viewed from a distance these plants resembled gigantic *Cockscombs*.

APPLES AND APPLE TREES.

In the Journal for the 3rd inst. Apple trees are mentioned as ornaments in the shrubbery. I wish the suggestion was

carried out; they would not only be ornamental but useful both for our consumption and for the fowls of the air, and would be the means of saving much of our garden fruit from the feathered race. The idea about the planting of more fruit trees is not new. I contend, and have long contended, that where we have one fruit tree planted we ought to have one hundred.

I have in years gone by planted different kinds of fruit trees in open spaces in the shrubbery, and intend to plant more. I wait not to purchase but to work my own in the best way I can.

Your correspondent names an Apple that is far too little known or cultivated. When a youth in a nobleman's garden we had the *Gravenstein* Apple trained on a south wall. The situation was not favourable to the cultivation of Apples, the soil and subsoil being a wet heavy clay, but with draining and the best treatment we could devise we were well repaid with fine fruit of this valuable Apple for dessert from the end of September to November, and though forty years have passed I have not forgotten the estimation they were held in. I incline to doubt whether at that season there is an Apple that can compete with the *Gravenstein*. I have also seen it grown as standards in other situations, attaining to a full-sized tree yielding moderate crops. It cannot be called a free bearer, but is of good growth and habit, seeming to do best on the limestone. It ought to be more grown than it is at present.

It is not easy to make selections of Apples among so many. According to my own estimation *Nelson Codlin* or *Backhouse's Nelson* is one of the very best Apples in cultivation. It possesses all the properties that constitute a first-rate Apple, and it has one more, for it happens to be in possession of so much pleasant saccharine matter that the eater usually can dispense with the sugar basin when he has this Apple in a tart. It is also useful for dessert, and is a capital baker. I have had it fine till March. It is large, of good appearance, tree of moderate size and an abundant bearer.—*PYRUS MALUS*.

HOLME LACY.—No. 3.

THE SEAT OF SIR HENRY SCUDAMORE STANHOPE, BART.

BETWEEN the pleasure grounds, which have been described, and the kitchen garden to be alluded to, there is a small strip of ornamental ground. This is separated from the pleasure ground proper by a bank of common Laurels, from the summit of which at intervals rise young weeping Birches, their gracefulness apparently being enhanced by the close mass of Laurels from which they spring. It is a pleasing termination to singularly attractive grounds. Behind the Laurels is a Yew hedge, which constitutes the eastern boundary of the enclosure mentioned, of which the garden wall forms the western extremity. Through this strip a curved walk with flower borders on either side and luxuriant standard Roses conducts to the kitchen garden. Behind the borders are lawns, which contain amongst other ornaments a handsome *Araucaria* and noteworthy specimens of those miniature Conifers *Pinus pygmaea* and *Abies Clanbrasiliana*; also a fine clump of *Pampas Grass* and a good example of the distinct deciduous tree *Catalpa syriacifolia*. Yet another tree here demands notice, not because it is rare, but because it is common and affords an useful lesson. It is a fine old Yew, the ground of which beneath its dense shade might have been bare had it not been for that most valuable of evergreen shade-enduring plants—the small English Ivy. This completely covers the ground, and is permitted to ascend the stem of the Yew to the height of a few feet, producing a very ornamental effect and telling passers-by, as plain as Ivy can tell, how valuable it is for covering the ground under trees, and how inexcusable are bare unsightly patches on lawns or banks, where a refreshing covering of green would be so much more enjoyable. However dense the shade may be, or dry and poor the soil, this Ivy will flourish and form a pleasing evergreen carpet, a fact that is worth being repeated that it may be the better remembered.

Pass we now to another feature of Holme Lacy. We are in the kitchen garden. It is a walled enclosure of two acres. The south wall, or a good portion of it, is covered with glass—four vineries and a Peach house: the east wall with Apricots, the west with Pears, and the north with Cherries. By the sides of the walks are very old herbaceous flower borders separated from the vegetable quarters by espalier fruit trees. There are also some established "ropes" of horizontal cordon trees, which bear good crops of very fine fruit. When one tree reached the stem of the next it was grafted on to it, and

eventually the stems of every alternate tree were cut away. The result of this was that the growth of the cordon was less luxuriant, while the fruit was finer than before. The soil is evidently good for fruit trees, Strawberries, and vegetables, all of which were growing with great freedom.

The chief range of glass is in keeping with the place—i.e., old; the Vines also are in keeping with the structures, being old also, perhaps octogenarians; and the heating apparatus was arranged during the very earliest days of hot-water engineering. Grape-growing is not a speciality, for not only are the Vines much too old for active work, but the houses are necessarily crowded with plants, especially during the winter and spring, which have as much attention as can be given them, yet useful Black Hamburg and Muscat Grapes are grown. Sir Henry evidently treats the Vines as he would good old servants—respects them for their long services, and his gardener, Mr. Paton, just "makes the best of them." That he would make better of young Vines is evident, for three young Alicantes had been planted, and although they proved to be the Kempsey Alicante (Black Morocco), which is by no means an easy Grape to finish well, they were bearing a good crop, the bunches full, and the berries regular. The Peach house is in the same range. The front wall is of brick, and the trellis is nearly flat, being not much more than 3 feet from the ground at the back, thus admitting light to the back wall, which is also covered with trees which are healthy and vigorous. Besides the vineries there is a more modern span-roofed structure in two divisions for the cultivation of stove and greenhouse plants; and here we find "plants of the past," such as *Witsenia corymbosa*, *Eucomis punctata*, *Linum trigynum*, *Swainsonia alba*, *Campanula garganica*, and others that are not seen everywhere; but in contrast with these old favourites are modern tuberous Begonias and Chilwell zonal Geraniums. On the roof of the greenhouse *Plumbago capensis* and *Tacsonia Van-Volxemi* are vigorous and floriferous. *Mandevilla suaveolens* and *Lapageria rosea* are also amongst the roof plants. On the roof in the stove are *Stephanotis floribunda*, *Passiflora princeps*, and the strikingly effective *Ipomæa Learii*; the beautiful blue flowers of this *Ipomæa* are very attractive but not long-lasting. The general occupants of the stove consist of popular decorative plants, such as *Crotona*, *Caladiums*, *Eucharises*, *Anthuriums*, *Pandanuses*, *Alocasias*, and similar plants that can be employed for vase-decoration in the mansion, also a few Orchids. The singular *Strelitzia reginæ* was also flowering. In the small borders outside the houses are several old and good herbaceous plants, also a mass of the Cape bulbous plant *Anomatheca cruenta*, which appears to have become naturalised. Certainly it is quite hardy here, for it has remained unprotected for many years, and has increased and multiplied.

Behind the glass range is the frameyard and garden offices. This department is only noticed because it affords an instance of the successful establishment of the brilliant hardy *Tropæolum speciosum*, which is generally as unsatisfactory in the south as it is magnificent in the north (Scotland). Mr. G. F. Wilson has during the past season exhibited flowering sprays of this plant, proving that it will thrive in the south, and "D. Deal," has suggested that a cool shaded position is the most likely to be suitable for it. The plants at Holme Lacy suggest that he is right. They were planted in a moist corner, and were trained up a wall which only receives the sun for a short time during the afternoon, and they were thriving as well as if they had been transplanted in Scotland. One of the most attractive displays that I have seen produced by this *Tropæolum* was on the cottage of the renowned Grape-grower, Mr. Dickson, at Arkleton, and I mention it to note that the rainfall in that district of Dumfriesshire sometimes exceeds 60 inches per year. It is clear, therefore, that the Flame *Tropæolum*, as it is popularly called, is a moisture-loving plant, and in the dry districts of England a cool and shaded position is the right place for it.

There yet remains the "cordon" wall to be noticed. This, so far as fruit-growing is concerned, is the best feature of Holme Lacy. The trees are on the south side of the wall which bounds the kitchen garden on the north. They are about 15 inches apart, and are trained at an angle of 45° with their points to the west. Every portion of the wall is covered from base to summit, and the trees are in the most fruitful condition. These cordons have produced the finest fruit that has been grown in that part of the country, and has on several occasions occupied the premier position at local exhibitions. Even during the past year when fruit was so scarce several of

these trees were laden with fruit—laden, perhaps, fully too heavily considering that a few fruits, and these as fine as possible, are what the owner covets. The trees are, however, admirably managed, and reflect much credit on the gardener, also on his predecessor who planted and trained them (Mr. Wells), now of Mr. Munro's nursery at Potter's Bar, who was for a long time gardener at Holme Lacy, and where he has left a name that is cherished by those who had many proofs of his ability and urbanity. The collection of Pears numbers upwards of eighty of the best varieties. There are several fan and horizontal-trained trees, but that portion of the wall covered with the cordons is not only by far the most ornamental, but is also the most profitable. It is a wall, indeed, of which both the owner and gardener may be justly proud. This system of growing Pears is so simple, attractive, and profitable that it is a little surprising that it is not more generally adopted in English gardens. A visit to such collections as those at Holme Lacy and in Mr. Roger Leigh's fine fruit garden at Barham Court, Maidstone, under Mr. Haycock's skilful charge, afford convincing evidence of the value of the method, which is certainly worthy of being more extensively adopted than it is. The cordon wall at Holme Lacy is one of the most complete in England, and is emphatically worthy of high commendation and imitation. The gardens at Holme Lacy are under the charge of Mr. Paton, and the good keeping of the grounds bears testimony to the attention that he bestows on them in rendering them enjoyable not only by his employer but also by the inhabitants of the district, for the gardens are by the kindness of the owner free on one day in each week during the summer months, and are visited by admiring thousands from the adjacent towns.

Very briefly the cider orchard must be referred to. It is extensive, and the trees are very old. They are on grass, and have received no pruning apparently for years past. Although last year was notoriously a bad fruit year, the trees in this orchard were almost broken down by their weight of fruit. It is no exaggeration to say that the fruit on the ground under the trees might have been shovelled up by cartloads. Gathered it never is; it is dashed the same as walnuts and carted to the stores and mills. Here in the orchard is the Redstreak, the Scudamorean Crab, "whose pulpos fruit with gold irradiate and vermilion shines." Here also is the Foxwhelp, which Knight valued so highly and at the same time predicted its gradual decay, for, as he said, "the grafts partaking of the life of two centuries can give nutriment only, not new life." The Red Must, an esteemed old native, is here; also the Pawson, or, in the local vernacular, "Parson," which looks better than it is. Here also is the Hagloe Crab, the Foxley Apple, the Friar, and many others which belong to a race quite distinct from the culinary Apples in general cultivation.

But I must leave the Apples to notice what I shall make bold to write as the most wonderful Pear tree in the world, and will leave it to others to disprove the correctness of this estimate by submitting authenticated instances of other trees that are more remarkable. This extraordinary tree is growing in the vicarage garden of Holme Lacy, which, with the old Norman church, is situated at more than a mile distance from the Hall and village. I have alluded to this as a "travelling tree," and the term is, I think, appropriate, for the tree has travelled under and over nearly an acre of ground. Much of it has been cut down from time to time owing to its having encroached on the house, and now only a relic of its former magnitude remains, but that relic is full of interest. It has been described as resembling the Indian Banyan tree, and the comparison is admissible. This Pear tree appears to have in a strange abnormal fashion crept along the ground, sometimes quite beneath the surface and sometimes partly above it, for it is not the roots that have thrown up suckers, one here and another 50 yards distant, but the stems; these can be plainly traced. Whenever a branch has fallen to the ground it appears to have derived renewed vigour and has crept along for several yards, when an upright growth has issued; this in turn has perpetuated the singular freak, until the tree has travelled over the space of ground mentioned. At the present some portions of this extraordinary tree are growing in the field outside of the garden, and other portions are quite on the opposite side of the large lawn of the vicarage. That these parts belong to the same tree and have issued from the same root appears almost incredible, but that it is so the testimony of the family is corroborated by the huge stems that in places can be distinctly seen trailing, serpent-like, along the ground. Some of these terrestrial branches have, however, been removed

and others are buried beneath the surface, yet that the tree has spread in the manner described there is ample evidence. It is one of the small perry Pears, and when the tree was in prosperity, and before portions of it were cut down, it is recorded that from fourteen to sixteen hogsheads of a hundred gallons each of perry have been made from it in one year. Is it not, therefore, a wonderful specimen? and is not the term "travelling tree" justifiable?

The church contains several splendid monuments, some of them of great antiquity, others more modern. The park contains similarly splendid trees, ancient and modern, many of which were unfortunately "laid low" by the terrific gales of last September. Even amidst the wreck of timber caused by that tornado Holme Lacy was beautiful—beautiful in its desolation. What, then, must it be in the fresh garb of its summer dress?—J. WRIGHT.

STEAM TREE-FELLING MACHINES.—A public trial of these, patented by Messrs. A. Ransome & Co. of Stanley Works, King's Road, Chelsea, took place recently at Roupell Park. The apparatus, which can be carried by four men, is laid on the ground near to the tree, to which it is fixed by two jaws and by a chain placed round the tree just below the saw-cut and drawn taut by a screw. The first tree felled was an Elm, 2 feet 9 inches across the cut. The machine having been adjusted the saw was set in motion, and the tree fell in less than four minutes. The second tree was also an Elm, 3 feet across the cut, and the tree fell in a little less than eight minutes. The third Elm, 2 feet 6 inches in diameter, came down in seven minutes and a half. When the work goes on uninterruptedly the task is accomplished with great rapidity. Four or five other trees were felled, one of them, with a diameter of 22½ inches, being sawn through in a minute and a half. In the heart of one of these trees was found an entire brick. The saw was not made to cut bricks, but as it was driven by steam it had no time to debate the point, and so went right through the impediment, with the loss of a tooth. As the saw cuts well into the tree wedges are driven in, as is usual in felling. The pressure of steam required for the felling of such trees as were operated upon is about 50 lbs. from a three or four-horse-power boiler.

WALL PROTECTION.

THE plan which I enclose is a system which I think will be found very useful for the protection of wall fruit. It consists

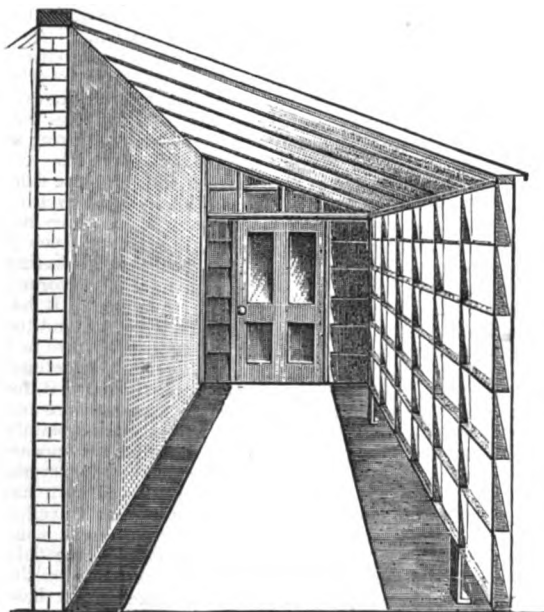


Fig. 9.—Wall Protection (Interior).

of a simple though diverse application of the grooved rafter. By making the groove oblique and of the length of the glass putty is entirely dispensed with, and the glass may be removed

at pleasure. I have now tried a model of the plan for some months, and it has safely passed through the ordeal of the violent gales which have been rife this autumn.

The oblique grooved rafter not only dispenses with glazing, but it also provides for the free and perfect ventilation of the structure. The air is admitted through the spaces left open at the end of each pane; in fact the ventilation is too great, but it can be regulated either by closing the openings with thin strips of glass or perforated zinc.

The distance from the wall is a matter of opinion; 4 feet is ample for easy circulation, and is enough for attention to the trees. The oblique grooving admits of the entire removal of the glass during the summer months, and I think most amateurs and professional gardeners will find this a great convenience. The comparative cheapness with which such a structure may be placed on the walls will render it accessible to many who do not care to give the attention required for a house. I believe that all kinds of fruits may be grown, and that Grapes will thrive as easily as Peaches. I shall be happy to show the model to any of your readers who wish to examine it.—T. FRANCIS RIVERS, *Sambridge north*.

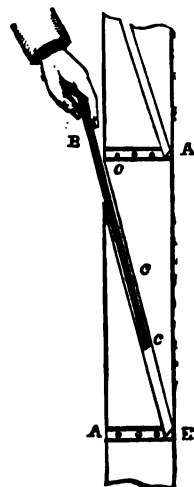


Fig. 10.—Section of Glazing.

- A. A.—Strip of perforated zinc.
- B. B.—Sheet of 21-oz. glass.
- C. C. C.—Groove for the glass.
- E. E.—Fillet to stop the glass.

NOTES AND GLEANINGS.

THE Council of the Royal Horticultural Society have appointed Mr. SAMUEL JENNINGS, F.L.S., F.R.G.S., as Assistant Secretary. Mr. Jennings has had considerable experience in administrative affairs in India. He was a Vice-President of the Agri-Horticultural Society; he managed for some time the Botanic Garden at Allahabad, and is favourably known by his beautiful work on Indian Orchids, published by Messrs. Lovell Reeve & Co.

THE ordinary monthly meeting of the SCOTTISH HORTICULTURAL ASSOCIATION was held in 5, St. Andrew Square, Edinburgh, on the evening of the 7th inst., Mr. Hugh Fraser, Vice-President, in the chair. There was a large attendance of members. Seventeen new members were admitted, and thirteen names were proposed and seconded for admission at the next meeting. Mr. James Grieve, of Pilrig Park Nursery, read a paper on the Phlox and Pentstemon. At the outset he touched upon the neglect of these good old plants by some gardeners, detailed the history of their introduction, and traced the progress of their cultivation to the present time. He gave his own experience as to the different modes of culture, and mentioned the various points requisite to make a good flower. As decorative plants their various uses were also named. At the conclusion of the paper several members expressed their opinions regarding the usefulness of these plants, referring to their suitability to the wants and demands of particular gardens. The thanks of the meeting were awarded to Mr. Grieve for his highly practical and useful paper. It was then intimated that the subject for discussion at the next meeting was "The Construction of Vine Borders," to be opened by Mr. Wm. Priest, Newbattle Gardens, Dalkeith.

MR. MOORMAN, writing in reply to "A KITCHEN GARDENER" on LATE-FLOWERING CHRYSANTHEMUMS, considers there are few, if any varieties, that can be relied on to bloom in January during ordinary seasons. The past season was three weeks later than usual, consequently Chrysanthemums are correspondingly later in going out of flower; but he does not know of any varieties that can be depended upon for flowering throughout January.

THE death is announced of the Rev. JOHN FOUNTAINE of Southacre Rectory, Norfolk. Mr. Fountaine was an earnest advocate of the orchard-house culture of fruit trees, and invented what is known as the railway system of fruit-growing—the trees being grown in pots on a truck placed on metals for the purpose of being drawn out of the house into the open

air as required. The system was tried at Chiswick but did not prove a success, and the plan, which Mr. Fountaine advocated in a pamphlet, never became popular. Mr. Fountaine, who was much esteemed by a large circle of friends, died on December 28th, in his sixty-third year.

— ONE of the most distinct of Evergreen Oaks is *QUERCUS AUSTRALICA SEMPERVIRENS*. Unlike the ordinary Evergreen Oak, *Quercus Ilex*, it has large foliage resembling the British Oak, *Q. pedunculata*. We recently observed trees of the Turkey Evergreen Oak referred to in Mr. Richard Smith's Nursery at Worcester, and could not fail being struck by the large bright green leaves when those of other Oaks were perishing on the branches or decaying on the ground. *Quercus australica sempervirens* may be described as an evergreen English Oak; it is very hardy and ornamental.

— AS difficulty is frequently experienced in removing RUST FROM STEEL, such as garden tools and household appliances, we submit the following mode as one of the best and simplest for brightening rusted surfaces. Cover the metal with sweet oil, to be well rubbed in, and in forty-eight hours afterwards rub with finely pulverised unsalted lime.

— SO popular have PALMS become as domestic plants, and so admirably do they thrive in the dry air of living rooms and in ill-lighted corridors, that they are offered in large numbers in Covent Garden, and from thence they may be seen on the barrows of costermongers and on the heads of plant-hawkers in the streets of London, who endeavour to earn a honest penny in distributing them over the homes of the metropolis. During the first week in January the weather was so mild that Palms and the hardier *Dracaenas* could be conveyed in the open air without being sheltered and without receiving any injury. The Palms which are the most extensively grown for market are *Latania borbonica* and *Seaforthia elegans*, both of which are as ornamental when small as they are stately when of larger growth. Plants of these Palms in 5 and 6-inch pots are valuable for decorative purposes both in rooms and conservatories, in town and in country.

— INDIAN FRUIT AND NUT CULTURE.—A notable feature of a recent meeting of the Toronto Fruit Growers' Association was the presence of one of the chiefs of the Tuscarora Indians. He has entered largely into the culture of nut-bearing trees, and gave an interesting account of his success to the meeting.

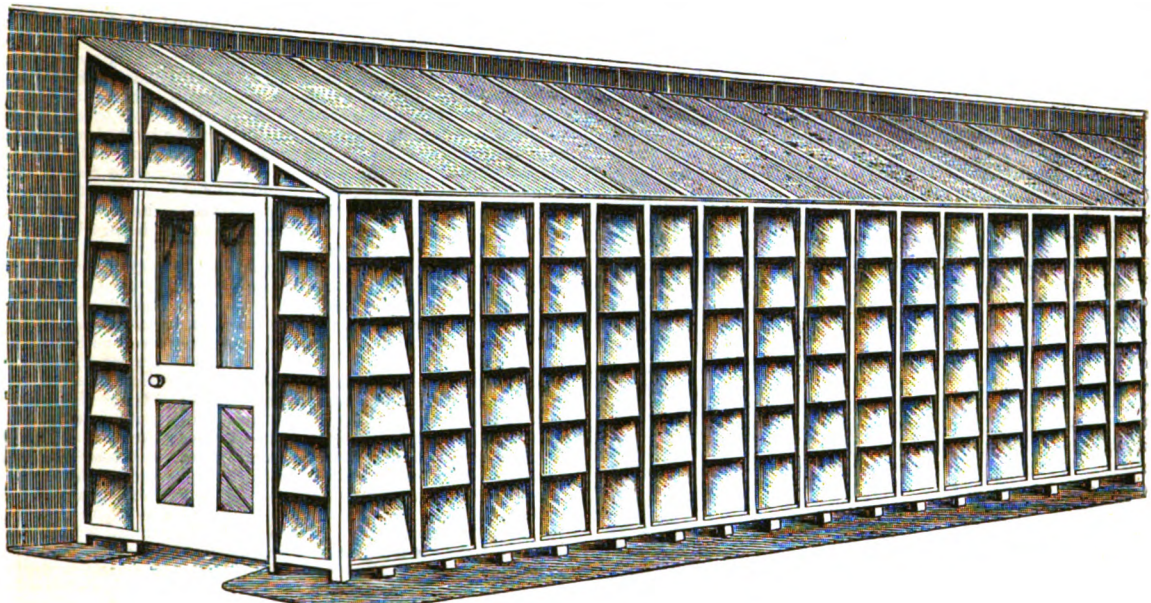


Fig. 11.—RIVERS'S WALL PROTECTION (EXTERIOR). See Page 52.

— MANY have observed that VARIEGATED-LEAVED PLANTS in certain soils and situations incline to lose their variegation more than in others. By recent experiments it has been shown that the ash of white and green leaves differs very much in its chemical composition. According to these experiments it has been shown that the ash of white leaves of *Acer negundo* contained 45.05 of potash, while the green contained but 12.61. The white leaves contained 10.89 of lime, the green 39.93. Quantitative analyses upon *Hedera Helix* and *Ilex aquifolium* show about the same proportion of difference between the variegated and green leaves. We may infer, therefore, that if we wish to preserve or increase the variegation in plants they must be fed with a maximum of potash and a minimum of lime.—(*Rural New Yorker*.)

— TEA ROSE CORNELIA COOK is now, says the "New York Rural," one of the most popular of all the Roses used by the bouquet-makers of New York during the winter months. The buds are long and much pointed, the colour being nearly pure white and the fragrance delicious.

— WE join in the regret which is so general among florists at the death of Mr. SAMUEL COOPER of The Hollies, Timperley, Cheshire. Mr. Cooper was an ardent cultivator of florists' flowers, and possessed excellent collections of Auriculas, Pinks, Tulips, &c., which he exhibited successfully for many years. He was most genial in his disposition, and met with a warm welcome in all gatherings of florists. Mr. Cooper was the winner of prizes in the Alpine classes at the Crystal Palace National Auricula Show which was held last year on April 24th.

— A VIENNA journal, in relation to PREPARING SPECIMENS FOR THE HERBARIUM, says, "Most botanical students must have regretted the change of colour which plants undergo in drying. We are informed that this inconvenience may be obviated by dipping the plants in a warm mixture of one part hydrochloric acid and six hundred parts alcohol, shaking them to get rid of superfluous fluid, and then laying them in warm blotting-paper, which ought to be changed at least once daily. By this means the plants will not only dry quickly, but will also retain their natural colour."

— A LARGE stock of JAPANESE PLANTS have arrived in Paris for the approaching Exhibition, having been brought over in charge of two native gardeners. They were welcomed by those in charge of the horticultural department of the city of Paris, who at once placed their grounds, hothouses, and even their staff at the service of their foreign *confrères*. The latter part of the offer was, however, not accepted, in consequence of the Japanese not being able to speak any language but their own. Besides this, they evidently considered themselves quite capable of managing the plants under their charge without extra help. The plants consist of deciduous and evergreen shrubs of various kinds and a few Conifers, all of which are dwarfs, the tallest being barely 3 feet high. The collection includes a few fruit trees, several Magnolias, *Daphne japonica*, *Gardenias*, *Spiraeas*, *Osmanthus*, &c., also a number of Japanese Maples, among which will no doubt be found several of the well-known species with which we have long ornamented our gardens. Unfortunately a large proportion of these plants

have suffered much from the effects of their two-months voyage, a number having died. A large quantity of Orange trees perished, which is particularly unfortunate, because some of them may have belonged to the so-called hardy sorts of which we have heard so much. On the other hand, it must be remembered, that without in any way wishing to call in question the gardening ability of our foreign colleagues, we must warn them that they are not yet at the end of their disappointments, and it is much to be feared that their want of experience of the climate of Paris will bring about much trouble and many vexations. We may add that these gardeners are strong, robust, and intelligent, and handle their tools, which are few in number, with great dexterity.—(*Revue Horticole*.)

—THE "ROSE AMATEUR'S GUIDE" by Thomas Rivers has reached its eleventh edition, a fact which speaks in the most practical terms of its excellence and acceptability. As praise would be superfluous we simply extract from the preface of the last edition. "The Rose shows of this year have been singularly successful in spite of an adverse season; the beauty of the blooms exhibited has elicited the remark from a French Rose-grower that no Continental Roses are equal in brilliancy to those of England. This is very flattering to English Rose-growers, more especially as the acknowledgment comes from one of a nation hitherto supposed to possess a monopoly both of Rose-growing and Rose-raising; the English seedlings are now fully as good as any raised in France, and we may hope that the improvement will continue." We join in the hope, and have no doubt of its being realised.

DEATH OF MR. ANDREW MURRAY.

WE regret having to record the death of Mr. Andrew Murray, F.L.S. He died on the 10th of the present month after a lingering illness. Mr. Murray was originally bred to the profession of the law, and belonged to the Corporation of Writers to Her Majesty's Signet in Edinburgh. He early interested himself in natural history subjects, and was one of the originators of the Orogen Committee in Edinburgh, which was a Society formed for exploring the western parts of North America chiefly for new Conifers, and the result of their labours was among other fine trees that have become popular, *Cupressus Lawsoniana*, *Pinus Jeffreyi*, *Abies Pattoniana*, &c. In 1858-59 he was elected President of the Royal Physical Society, and he filled also the office of President of the Botanical Society of Edinburgh. In 1861 Mr. Murray was chosen by the Council of the Royal Horticultural Society to succeed Mr. Booth as Assistant Secretary, which office he held for a few years, and on his retirement he was elected on the Council. For some years Mr. Murray has been engaged under the direction of the Science and Art Department of the Privy Council in preparing a museum of economic entomology, which is now to be seen in the Bethnal Green Museum, and which exhibits in a marked degree not only Mr. Murray's perfect knowledge of this subject, but his attainments as an accomplished artist. As an artist he was quick and facile, and could sketch off in the best style a landscape or an object without any difficulty. Soon after his appointment to the Horticultural Society he published in 1863 an illustrated volume entitled "The Book of the Royal Horticultural Society," dedicated by Her Majesty's permission to the memory of the late Prince Consort. In 1866 he published his "Geographical Distribution of Mammals," in which he brought together such facts as were known, and illustrated the distribution by coloured maps. He died at Bedford Gardens, Campden Hill, Kensington, in his sixty-sixth year. Mr. Murray was the son of Mr. William Murray of Conland, and was born in Edinburgh in 1812.

WORK FOR THE WEEK.

KITCHEN GARDEN.

IN order to meet the demand for certain kinds of vegetables it is desirable to provide liberally of such crops as Peas, a good breadth of which should now be sown as soon as practicable, William I. being recommendable for its hardness and earliness. We prefer a south border for early sowings, the rows pointing north and south, sowing in a double row—that is, drawing a drill on each side of the line, the rows 8 feet apart. To guard against vermin the seeds of all kinds subject to the attacks of mice as well as birds are thoroughly moistened with paraffin water, about a quarter of a gill of paraffin to a gallon of water, stirred well up with the seeds in it. The water is then poured off, and the seed is thoroughly coated with red lead. We find no injury result to the seed, whilst no quadruped or biped interferes with it. Our

early sowings are just covered with soil, and have an inch of sifted ashes placed over the rows to afford protection from frost and slugs. Broad Beans are treated in a similar manner, of which a sowing of Early Longpod should be made the earliest opportunity. Cauliflowers and Lettuces in frames or handlights to be kept hardy by withdrawal of the lights entirely when the external air is over 35°, except in wet weather, when the lights ought to be tilted.

Forcing Department.—Continue to introduce fresh supplies of Asparagus and Seakale roots, Rhubarb and Chicory, at regular intervals, so as to maintain a supply which will need to be regulated according to the demand. Keep up the supply of Dwarf Kidney Beans, which may be sown in pots moderately drained and three parts filled with rich medium-textured loam, placing six to eight beans around the sides of the pot, and pressing them into the soil with the finger up to its first joint. Osborn's Forcing is dwarf and very prolific. We employ 9 or 10-inch pots. It is essential that a light airy position be afforded in a house with a temperature of 85° at night, 65° by day, advancing to 75° and more from sun heat. Sow Radishes and Carrots in alternate rows 3 or 4 inches apart on prepared beds when the soil has become warmed; also plant Potatoes in pits or frames, earthing-up those growing freely. The earliest crops of Potatoes are had from pots three sets inserted 4 inches deep in 12-inch pots, forwarding them in light airy positions in Peach houses or vineries.

MUSHROOM HOUSE.

The earliest beds will now be nearly exhausted. In case of the material not being much decomposed a good soaking of water at from 90° to 100°, with half a pint of salt to every six gallons, well stirred, will often cause a return to bearing; but if the material of the beds be much decomposed it is better to replace them by beds of fresh material. This is a good time to make beds in cellars or any kind of outhouse which can be kept close. Fresh horse droppings with a fourth of short litter form good beds, it being essential that the material be so moist as to form a firm mass by beating with mallets, placing the material in thin layers and beating each very firmly; 12 inches in depth of bed will suffice, but 15 to 18 inches afford more durable beds. When the temperature of the bed falls to 75° insert the spawn in pieces about 2 inches square and 9 inches apart, covering 2 inches by closing the material well around and over the spawn. Within a week the spawn will have spread somewhat if good, and the bed should then be earthed. Turfy loam chopped-up moderately small spread on 2 inches thick and made very firm, with an even and smoothed surface, the soil being so moist when used as to bind. In about six weeks, depending upon circumstances and temperature, ours being kept at from 60° to 65°, the Mushrooms will show themselves. The bed is then to be kept regularly moist, avoiding over-watering, which induces speedy decay of the material, destroys the mycelium, and ruins the crop. Beds in bearing should be daily examined, and any dry places sprinkled with water of the same temperature as the house, letting as little as possible fall upon the Mushrooms. In positions where sufficient heat is not insured a thick covering of dry material is necessary for warmth; but it is a mistaken idea to consider darkness essential to the production of Mushrooms, light with moderate ventilation greatly improving the flavour.

FRUIT HOUSES.

We are convinced that most of the failures of fruit crops under glass arise from an insufficiency of water at the roots; but in badly drained borders over-watering is highly prejudicial. Imperfect drainage should therefore at once be rectified. Vines and Peaches ought never to have the soil dry, even when leafless, for when the soil is allowed to become very dry it is not only a cause of exhaustion (which Peaches and Nectarines resent by casting their buds), but causes much trouble in thoroughly moistening again. Vines in dry borders frequently break irregularly, and their early growth is enfeebled. Our remarks apply to inside borders, which are often kept much too dry.

Vines.—The rods should now be pruned as soon as possible. Any Grapes may be cut with a piece of wood attached, the stems being placed in bottles of water in any dry room with a temperature of about 45°. In pruning cut to a plump eye, the one nearest the main stem; for though the buds near the base of the shoot afford smaller bunches, they are usually more compact and admit of a better finish than the larger looser bunches resulting from eyes at a distance from the rod. Two, or at most three eyes, will be ample provision for a good show of fruit. Strip off the loose bark, avoiding injury by scraping, and dress with the following composition for destroying insects:—1 lb. of soft soap to a gallon of water, brought to the consistency of thin paint by the addition of tobacco powder. If there have been any mealy bug add a quarter pint of spirits of turpentine. The glass and woodwork should be cleaned thoroughly, taking off also the surface soil of the border 2 or 3 inches thick, replacing with good fibrous loam, of which Vines never tire.

Pines.—Plants swelling off their fruit should be syringed overhead occasionally early in the afternoon when the axils of the leaves become dry, and every available surface of the house should be syringed twice a-day. Fruiting plants and starters should have a mean temperature from fire heat of 70°, about 6° lower in

severe weather at night. Allow the temperature to rise to 80° or 85° with sun, giving air at that, and closing at the same temperature. Bottom heat of 80° to 90° is easily obtained by hot-water pipes placed under the bed; but if from fermenting materials see to having them ready for starting a batch of Queens early next month. Successions keep at 60° to 65° at night, 70° to 75° by day.

Melons and Cucumbers.—Sow at once for the first crop, placing the pots in a bottom heat of 75° to 80°, and top heat of 70°. Moderate light loam is best for seed-sowing, though strong loam is preferable for the fruiting beds. The soil being moist no watering will be needed until the seedlings appear. Those requiring Cucumbers early in spring should sow forthwith (they requiring similar conditions to Melons), potting-off the plants singly when the rough leaf shows in the centre of the seed leaves, and watering very carefully, or damping will ensue.

PLANT HOUSES.

Greenhouse.—Use no more fire heat than is absolutely necessary; 45° is a sufficiently high night temperature, falling to 40° in the morning, especially for hardwooded plants. In very severe weather avoid side ventilation, as the cold air rushing through the plants is more or less injurious; but in mild weather admit air very freely. Azaleas endure a lower temperature than most other hardwooded plants, but should be kept from frost, yet the cooler they are the better, especially those required for late bloom. They must not be allowed to get dry at the roots, as they are moisture-loving plants. New Holland or Cape plants advancing for flowering to be more freely supplied with water. Heath keep cool and well ventilated, as they are easily excited into growth by closeness and warmth. Pelargoniums require very careful watering, as when water is abundantly furnished the plants assume a coarse habit of growth. Autumn-struck cuttings having filled the small pots with roots shift into 4 or 6-inch pots, using good loam, with a fourth of well-decayed manure. Pinch out the points of the shoots if not already done, to induce them to break, training those with several shoots, so as to form the ground of the specimen. Kalosanthos are useful decorative plants; keep them near the glass, and water carefully to prevent the loss of the lower leaves. Zonal and Nosegay Pelargoniums intended for summer flowering should be potted and kept in a temperature of 50° to 45°, potting firmly, and not giving too much pot room, as this and loose soil only tend to rank growth.

Orchids being yet mostly inactive, the temperature of the East India house should be 65° day, and 60° to 58° night; Mexican house, 58° to 60° day, 50° night. Not much air will be required, but the atmosphere will need moisture, which may be obtained by damping the floor and stages. Dendrobiums showing flower to have moderate waterings, and if given a slight increase of heat, to encourage the expanding of the flowers, all the better. Odontoglossums require moisture at the roots at all times, especially when advancing for flowering; also *Oncidium* coming into flower to be well supplied with water at the roots, as dryness causes the pseudo-bulbs to shrivel. Plants not in flower of *Calanthe vestita* to be kept dry until they start into growth, some of which will do so soon, when they should be potted. *Phalænopsis* on blocks require frequent syringing, those in baskets or pots to have the surface kept moist. Top-dressing and potting must soon have attention, therefore have ready the requisite materials.

TRADE CATALOGUES RECEIVED.

Charles Turner, Royal Nurseries, Slough.—*Catalogue of Vegetable, Flower, and Farm Seeds.*

Dick Radcliffe & Co., 129, High Holborn, London.—*Catalogue of Vegetable and Flower Seeds and Garden Requisites.*

William Rumsey, Joyning's Nurseries, Waltham Cross.—*Catalogue of Select Vegetable, Flower, and Farm Seeds.*

Dickson & Sons, 1, Waterloo Place, Edinburgh.—*Catalogue of Garden Seeds and Implements, also List of Gladioli.*

Thomas Bunyard & Sons, Maidstone.—*Descriptive Catalogue of Vegetable, Flower, and Agricultural Seeds.*

TO CORRESPONDENTS.

. All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense. Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

ZINC LABELS (J. H. A.).—The electric action you refer to is so weak that it has no effect upon the branch to which the label is attached. It only injures the labels, often causing them to drop off the trees.

TOKAY VINE FAILING—INARCHING (A Subscriber).—White Tokay has always done well with us, but we have seen it fail with others, as it has done with you. Probably it has made more wood than could be thoroughly

ripened. We advise you to inarch one Gros Colman and one Trebbiano on it. The latter is equally as fine a Grape as the Tokay, and Gros Colman will be a fine addition to your other sorts. As you have not pruned the Vine cut the main stem down to the two lowermost shoots, which should branch out on each side like a Y. Allow these two shoots to start into growth, and as soon as the leaves begin forming inarch the Gros Colman on one of the shoots and the Trebbiano on the other. Inarching is simply accomplished by taking a slice about the length of your finger from the side of the stock and the same from the Vine that has to be put on it; make the cuts as near the same size as possible, and put them face to face, then bind the two firmly together with a piece of strong matting. Three weeks after tying take this off and tie it up again, but not so firm. In six weeks the union will be complete. Some cut away the Vine at this time, but it is best to leave it until autumn.

DRIP FROM COPING (J. A.).—The drip is not so heavy as to be injurious to the roots of the fruit trees.

NIGHT SOIL (C. H. M. W.).—It has no influence in the production of wireworms.

JASMINE BUDS FALLING (B.).—Roots deficient in action, probably owing to want of moisture. Apply copiously tepid water.

CONDOR PEACH (O. S.).—This is a comparatively new Peach. It was raised by Mr. Rivers from Early Silver, a large Peach, which was raised from the White Nectarine. Condor is a large Peach, bright crimson in colour, and has a rich piquant flavour. The tree is hardy and a good grower. It ripens at the end of August or beginning of September.

CLASSES AT HORTICULTURAL SHOWS (Cockgate Street).—By "gardeners" only those who receive wages from an employer, not a nurseryman, should be intended. Amateurs should be gentlemen who either are their own gardeners or who have them in their service. Cottagers ought to be labourers. The committee of each horticultural show would do well if they defined in their schedule the class of persons entitled to compete for each prize.

EARLY VINES FAILING (F. Z.).—Without knowing the weight of crop your Vines produced last year we cannot tell whether they were overcropped or not, but the fruit hanging on them until September would not injure them in the least. We suspect your Vines have not failed, but are only shy in starting into growth, chiefly owing to their being started a month earlier this year than they were last. The beginning of November is very early to start Vines, and as a rule they will make as much progress in one month in spring as they do in two in autumn. As the heat from the manure has 2 feet of soil between it and the roots they will get no assistance from it. For the next three weeks keep the temperature of the house at 60° by night and 65° or 70° during the day. Damp the rods once a-day through the syringe and keep the atmosphere always humid. Their wood will not be sufficiently matured to start them into growth again by November of this year, but they might be started in January, 1879, and after that they will bear starting into growth a fortnight earlier every season until you have reached the beginning of November. Few Vines freely submit to be started a month earlier one year than another.

FRUIT TREES FOR A SMALL GARDEN (A. Oldfield).—The pyramidal form is quite the best for a small garden. For fruit trees in pots the size of the pot will, of course, vary in proportion to that of the tree, those ranging from 12 to 18 inches in diameter being in common use.

FRUIT AND VEGETABLE CULTURE (Idem).—You can have no better guide in these matters than the cultural notes given in this Journal under the heading of "Work for the Week." The "Garden Manual," published at this office, will also afford you much information. It is sent post free for 1s. 8d.

LIQUID MANURE FOR AZALEAS (F. B. M.).—It will assist the development of the flowers if you give them clear guano water, using a quarter of an ounce to each gallon of water. Watch closely the process of expansion, using or withholding the manure as may appear necessary. As a general rule a liberal dose once a-week will suffice.

ANTS IN A GREENHOUSE (Idem).—A couple of toads will clear off a colony of ants with marvellous celerity, as well as many other insect pests. We keep two or three toads in every one of our glass houses. When we see ants on a plant we always have a suspicion that it is infested by insects. Keep your plants quite free from all insect pests and you will find the ants less troublesome.

MISTLETOE PROPAGATION (A Thirteen-years Subscriber).—From the end of January until the end of March inclusive is the best season for sowing the berries. This may be done by making two cuts on the under side of the branch of an Apple, Crab, Thorn, or Lime tree in the shape of a V, the cuts being made through the bark quite to the wood; raising the tongue of bark made by the cuts, taking care not to break it, squeeze from the berries one or two seeds neatly under the bark, and let the tongue back into its place; the operation is then complete. We have had them grow freely by squeezing the seeds from the berries on a smooth part of the bark on the under side of the branches, the seeds adhering to the branches by the glutinous matter. You may also graft early in May, making an incision in the bark of the tree and inserting into it a thin slice of Mistletoe with a bud and leaf or leaves at the end; or you may put in large pieces of Mistletoe, taking a piece of wood from the tree so as to correspond with the graft, the latter being prepared as in notch-grafting—with this difference, that for the Mistletoe an incision is made below the notch, as in crown-grafting, to receive the scion, a shoulder being left on the scion to rest on the notch made in the stock. Budding may be performed from the beginning to the middle of May, the buds being put in with the wood, a short heel of wood being retained below the bud for insertion.

MYRTLES NOT FLOWERING (W. H. W.).—You have done well to repot your old Myrtles; it will reinvigorate them and induce free growth, which will subsequently afford plenty of flowers.

POTTING FERNS (Idem).—Ferns do not require repotting annually. Let their condition be your guide, undersized fronds and a tendency to deteriorate being a sure sign of their requiring fresh soil.

ERRATUM.—The spread of the branches of the Trysting Oak at Holme Lacy, noticed on page 495, is 1365 square yards, not feet, and when measured a few years ago the tree was estimated to contain 1842 cubic feet of timber, taking all that would square to 6 inches.

ELEVATION OF VINERY—VINES FOR EARLY AND LATE HOUSES (A. B.).—A vinery of the dimensions you name should be 16 feet high at the back and 3 feet 6 inches at the front. The Vines should be planted 4 feet apart. At this distance six Vines will be required for each division. In the early

compartments plant three Black Hamburgs, one Foster's Seedling, one Buckland Sweetwater, and one Royal Muscadine; for the late division two Gros Colman, one Black Alicante, one Lady Downe's, one Trebbiano, and one Syrian will meet your requirements.

PEACH TREE BUDS DROPPING (Amateur).—We have frequently painted the pipes in Peach and other fruit houses with lampblack, and never found any injury to the trees resulting from it. Glahurst compound applied at the rate you mention would not injure anything. We suspect the cause of the buds falling is wholly owing to the trees having been started into growth in too high a temperature. For the first twelve days after the house is closed the night temperature should not exceed 50°, and 60° by day. When in flower these should be increased by 5° night and day. The best thing you can do now is to keep the house quiet at these figures, and spread leaves and dung over the roots to the depth of 18 inches. It requires more skill than most amateurs possess to start Peach trees successfully into growth in December.

SUMMER-FLOWERING CLIMBING PLANTS (A Reader of the Journal).—*Manrandya Barclayana* is one of our best climbers, making a rapid growth, flowering freely, and of much elegance and beauty in both foliage and blossom. We have now four varieties—white, purple, crimson, and pink. It is perennial. *Nasturtiums* and *Convolvulus* of many colours, the curious yellow-flowered *Calophoras*, the old favourite *Tropaeolum canariense* with its bright yellow flowers, the purple and white *Cobaeas* are suitable, and you might add with advantage that fine old perennial climber *Eccremocarpus scaber*, which grows so freely from seed and makes such a brilliant show with its rich orange-scarlet flowers.

ROSES FOR SOUTH AND EAST WALLS (A Constant Reader).—You are apparently unaware that it is unusual to plant "Perpetual" Roses against walls owing to the slowness with which they cover wall space in comparison with *Tees* and *Noisettes*. In compliance with your wish, however, we name six varieties—*La France*, *Beauty of Waltham*, *Marquise de Castellane*, *Annie Wood*, *Comtesse d'Oxford*, and *Boule de Neige*; but for ourselves we should prefer such sturdy ramblers as *Gloire de Dijon*, *Climbing Devonensis*, *Homère*, *Cheshunt Hybrid*, *Goubault*, and *Souvenir d'un Ami*. Have you given *Maréchal Niel* a fair trial? Try half a dozen of it in various positions and aspects, and you will probably find one or two of them to answer as well as your other Roses, while the others may fail. Such has been our experience in the culture of this fine Rose. Let the whole of your Roses be on stout healthy Briars.

CONVERTING YOUNG STANDARD FRUIT TREES INTO PYRAMIDS (A Constant Reader).—Cut the heads clean off to within 2 feet from the bottom, and you will have plenty of shoots springing forth from the part you retain. Let the whole of them grow, thin out next autumn, taking the top shoot to form the future stem, and shortening it then to about a foot. Continue this treatment with a moderate summer pruning, and you will have some fine pyramids three or four years hence. We presume that the trees have been grafted low—just above the ground line.

LILIUM AURATUM (Rus in Urbe).—Do not lose a day in potting the whole of your bulbs in rich loam or garden soil enriched with manure, plunge the pots in ashes or in a cold frame, and as soon as the roots reach the sides of the pots—which they will not be long in doing, say by the end of February—turn out those you intend growing in beds, and treat your pot plants precisely as has been advised in the notes to which you refer.

FRUIT TREES FOR A CONFINED SHADED POSITION (G. E. C.).—With a wet heavy soil Plums, Pears, and Cherries will probably answer very well. Raise the soil somewhat above the ordinary level for each tree, and mix plenty of gritty matter with it, such as broken stones, bricks, mortar rubbish, or coal ashes, and enrich it with a little manure. We are not clear as to the number of trees you require. Here are three hardy varieties of each. *Pears*.—For September take *Williams' Bon Chrétien*, for October *Fondante d'Automne*, and for November *Doyenné du Comice*. *Plums*.—*Purple Gage* and *Green Gage* for eating, and for cooking you ought certainly to have *Victoria*, which will probably answer better in your peculiar circumstances than any other fruit of any kind. *Cherries*.—For June Early *Purple Gage*, for July *Governor Wood*, and for August and September *Morello*.

FRUIT FOR SOUTH WALL (F. H.).—The Pears may be *Beurré Diel*, *Glou Morceau*, and *Winter Nelis*. The Plums *Green Gage*, *Coe's Golden Drop*, and *Iceworth Imperatrice*.

PLANT ON WET PLACE (R. W.).—It is the *Arctium Lappa*, the Great Burdock.

INSECTS (A. B.).—Boil 4 ozs. of quassia chips for ten minutes in a gallon of soft water; strain off the chips and add four gallons of water, and with this syringe plants or trees infested with aphides.

NAMES OF FRUIT (M. D. Woodford).—We do not recognise your Apple.

NAMES OF PLANTS (W. K.).—1, *Sericographis Ghiesbreghtiana*; 2, *Physalis edulis* (Winter Cherry); 3, *Saxifraga Gmelini* or *hypnoides*.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

FARM-HORSE MANAGEMENT—continued.

BRICKS are sometimes used for stable floors; they are, however, generally absorbent and hold urine, giving off foul air. When hard and grooved they will not bear the tread of heavy horses which break up the grooves, whilst the broken surface retains decaying matters, rendering the air impure. All these floors require a gutter and drain to carry off the liquid manure, and are objectionable whether the urine is retained in a tank or allowed to pass away into the farmyard. In the former case injurious gases are generated and often return into the stable; in the latter it is either wholly or partially lost as liquid manure. The only time it is available is where there is pasture land near lying at a lower

level, whereby, in conjunction with the rainfall at the homestead it can be used for irrigation purposes.

Having stated our objections to the farm stables as we generally find them, we will offer a few observations on the system of earth floors we have used and seen in use on various farm premises. The laying of earth floors involves no great expense. The first thing to be done is at all leisure times to collect all the loamy earth that can be obtained on the farm from the roadsides, the ditches, the borders of fields—in fact, wherever it can be conveniently obtained within easy distance; and where other soil is not available we must resort to the sand pit, but we prefer a rather strong loam to a sandy loam, as being better adapted for absorbing and fixing the manure contained in the urine, and at the same time it makes a more compact and harder floor. In storing the earth for use it is either put into a covered hovel or shed, or otherwise made up into a compact heap and thatched with turves, hedge trimmings, &c., and after a time when it has become mellow and quite dry and required for use it is then picked down, broken fine, and passed through an ash screen or half-inch sieve in order to remove stones, sticks, &c.; it is then ready for use. Our plan in converting an ordinary stable for our purpose is to take up the stone or brick floors, under which is usually found a quantity of material which makes first-rate manure, having been saturated with urine for a long period. The value of this will often repay the expense of the change. We then excavate the ground 2 feet in depth, making a pit for the reception of the earth, which should extend from the manger or feeding-trough back to the pathway, which may be left undisturbed—about 4 feet in width, if the building is large enough, otherwise a 3-feet pathway will do. We always take care the pit shall be from 10 to 12 feet in length from manger to feeding-path. We then fill in the dry screened earth a little at a time, ramming it down hard and firm during the process of filling with an iron-head rammer, and filling up to within a few inches of the level of the pathway at the back of the stalls, and made quite level over the whole surface of the floor, so that the whole area of the floor may be available for absorption. When made firm by the rammer the earth will not sink or tread into holes or puddles, but will soon become as hard almost as stone, and yet it most readily absorbs the urine and renders the air of the stables pure and pleasant for the animals to live in. Under this system during a number of years our horses were perfectly healthy, and we estimated that our animals lived and were able to do their work for several years longer than we ever had them before upon the stone floors as before described. At the same time we obtained all the liquid manure (the solid excrement being removed daily), and we found that the period for renewal of the earth would vary from nine to twelve months, according to the nature and dryness of the earth. When filled into the pits it makes a great difference, too, whether the attendants carry out their orders, because if details are not attended to, this, like any other system, will not answer the purpose intended.

In connection with the earthen floors is a great saving of straw, a warm and comfortable bed to lie and stand upon, added to which the horses' feet will always be found in much better condition for shoeing, &c. These observations apply entirely to stall stables. If, however, the horses were allowed a loose box 10 feet by 12 feet, with a 2-feet pit filled with earth in the same way, the earth would not require removal for two or three years, simply because they would not drop their urine upon one particular spot. We hope, however, to return to this subject as applied to stables for nag and carriage horses, &c., at a future time.

The ventilation of stables is a matter of prime importance, and for this reason we disapprove of lofts over the horses with feeding racks for hay; but in preference we like to have the stable open to the roof, which secures ventilation, and we prefer feeding-mangers only instead of racks overhead. Granivorous animals should never be required to take their food from a high rack. The manger should be 3 feet high, 2 feet wide, and 1½ foot deep, and in the case of double stalls 10 feet wide when the horses stand in

pairs, each being tethered to the corner of the stall. A space of 2 feet at either side should be divided off for the animals to eat their corn, roots, and other food separately, leaving the centre space for them to eat their chaff, hay, &c., in common. We think that in feeding farm horses they should never be without some green food both in winter and summer, and we consider the best vegetable food is carrots, although they will do well upon Swedish turnips or mangel; but the roots should always be given with chaff, meal, or crushed grain.

In conclusion, we will refer to the best position or frontage for a farm-horse stable. It is a common practice to place it fronting to the south or south-west, but we prefer the stable to face the north or north-east, as working horses seldom suffer from cold in winter, and as they have to contend with all sorts of weather whilst at work they should not be too closely confined when housed. Again, in the summer time when the entrance to the stable and the windows face the north the animals derive much comfort when the sun is excluded from the stable as much as possible, seeing that flies trouble them very much, and we know flies follow the sunlight. It is also common to find the stable to face the farmyard. This we object to, because working animals are continually going to and fro, which often disturbs other stock, therefore the approach to the stables should be as easy of access as possible without gates or other impediments.

WORK ON THE HOME FARM.

This being the duller part of the year for farm work, if all the wheat has not been sown the sooner it is put in the better; every day is an object. Now the land is close and heavy the wheat will go forward like autumn-sown. If no rye has been sown for fodder for dairy cows, &c., April wheat should now be put in for that purpose, as it will come nearly as forward as autumn-sown rye, and prove better fodder because the plant is more leafy; and if not required as fodder it may be cut for straw just as it comes into ear, and straw being very dear it may be very serviceable when the home farm consists for the most part of pasture land. The horses now may cart dung to heap, or from heap to pasture land, or cart earth to form the basis of future heaps of manure for turf land. The labourers should now after heavy rains go, spade in hand, and let off water wherever it is found in the fields, and particularly on the late-sown wheat. They will also be engaged in making-out ditches, plashing hedges, stopping gaps in the quick and other hedges made by hunting and shooting sportsmen. The best way we find to stop gaps is to bring down boughs on either side and tie with tarred yarn or copper wire; one year's growth after will effectually stop the gap. It is no use to plant young plants to fill blanks; they never thrive, and it does not look well to use posts and rails.

POULTRY KEEPING.

CAN poultry-keeping be made profitable? We know of no question upon which opinions are more conflicting. One day on our journey to town a suburban resident complains of the scarcity of eggs, that such a thing is never seen on his breakfast table during the winter, and that he believes every one he gets throughout the year costs him 6d. in food. His neighbour tells a very different tale: he finds his fowls very remunerative—they lay well, and summer or winter he is never without the delicate luxury a new-laid egg. Further, he has been fortunate enough to hatch ten chickens early in March; they all lived and did well. Four of them, however, turned out to be cocks, and had been transferred from the poultry run to the table, the most delicious fowls he had ever tasted. The other six pullets were now in full lay, and had kept him well supplied with eggs since Michaelmas. Upon further inquiry we found our first informant had not been more fortunate in rearing chickens than he had been with his eggs. The hen he sat in March had most annoyingly deserted her nest; a second was tried in April, but she was so clumsy she contrived to break five of the eggs; two did not hatch, and one was such a bad mother only one miserable little object was alive out of the five she did bring off. The cases we have quoted are not exaggerated; similar results and diversities of opinion we hear daily. We quite believe them, and often from our own knowledge of the people expect them, but who but those who from experience know the necessities of fowls can reconcile them? Accidents happen and failures sometimes occur with the most careful, but we are convinced the cause of failure which poultry-keepers assign to so many causes, bad luck coming in for a large share, too often is occasioned by neglect and rests with the disappointed ones themselves. Fowls, it must be remembered, are not playthings and, like children's dolls, to be made the all-engrossing amusement of an hour and then left to the tender mercies of an overworked general servant or cook. No matter if fowls are kept for egg-producing, for the table, or reared for the exhibition pen, certain essentials must be provided for their shelter, and an amount of regular attention given to their natural wants. They cannot be treated like the Irishman's pig that was alternately starved and fed to get the bacon streaky. A week's nursing cannot make up for a day's neglect. It is better to feed once

a-day with regularity than three times with occasional omissions. The fowls would thrive better; and apart from the question of profit, it is so much more satisfactory to look at a nice pen of healthy fowls with their blood-red combs than the pale sickly-looking wretches we find in some of those neglected aviaries. We think the "Ingoldsby" author must have had one of those miserable occupants before him when he wrote the effect of the cardinal's curse upon the jackdaw—

"On crumpled claw
Comes limping a poor little lame jackdaw;
No longer gay as on yesterday,
His feathers all seemed to be turned the wrong way:
His pinions drooped; he could hardly stand;
His head was as bald as the palm of your hand;
His eye so dim, so wasted each limb,
That, heedless of grammar, they all cried 'That's him!'"

Fowls to be profitable must be fed with regularity, and in future numbers we shall give a few brief suggestions upon this subject; but to those who are dreaming that something or other will improve their prospects of success during the ensuing season, we warn them their dreams will not be realised without regular attention. The new year generally suggests a new point of departure in the affairs of life, so we would most sincerely advise all who have so signally failed in poultry-keeping to take this opportunity for a fresh start, and to remember past failures only for the purpose of profiting by the experience, and to believe that, whether they rear fowls for the table or for exhibition, the fault will rest principally with themselves if they are not successful.

POULTRY IN 1877.

(Continued from page 39.)

WE have often wondered why the Spanish fancy does not increase. At one time we were inclined to think that this arose from a few old and experienced breeders keeping up stocks which it was almost impossible to beat. Many of them have, however, now retired, and those who continue to exhibit do so for the most part at the great shows, and do not, like some other fanciers, send all over the country for every 15s. prize. We now believe that it is in some measure due to the unfortunate trimming of the face. It was our own lot to choose Spanish as our first exhibition breed, and after we had for two or three years bred carefully from excellent specimens, and produced birds which subsequently in other hands carried all before them, we never so much as won a high commendation, simply because we were perfectly ignorant of the modes in which faces are got up. In disgust we abandoned them for other breeds, and we know that others have done the same. Either this improvement of the face for exhibition should be a recognised thing like the grooming of horses, or it should be put down. We hope the new Poultry Club will take the matter into its consideration. We should like to see texture and shape of face taken into consideration by judges more than its mere size. So enormous has become the development of face in some strains that hens are produced which might be mistaken for cocks, while the inside of the cocks' gills is white like the face. Bristol is still the head quarters of Spanish, though the breed is not there distributed as formerly, but most of the best specimens that we have seen during the past year have come from the yard of Mr. E. Jones. We commend the breed to anyone wishing to start a fresh variety. At many of the early chicken shows there is little competition in it. At Ipswich a cup and six prizes were offered, while only one bird was to be found that could possibly have been noticed at a good show.

The Pencilled and Spangled varieties of Hamburgs retain their old popularity in the north, but we regret they are not more fancied in the south, so hardly do we find them with a free range, always bright and active, moulting in the shortest space of time, and all the rest of the year in good trim. Now and then a fine specimen is produced in the south, as the Golden-pencilled cockerel at the Crystal Palace Show, but it is generally at once snapped-up at any price by one of the northern breeders. We fear that many are prevented like ourselves from showing them more extensively on account of the unscrupulous way in which their combs are cut and carved for exhibition, and what is far worse, the barefaced manner in which some judges select these doctored birds for the highest honours. The Black variety has attained a very high point of excellence both in form and glossy-green sheen. Some of those shown by the Rev. W. S. Serjeantson during the past season appeared to us as near perfection as possible. The classes are well filled, and to win in them is indeed a high honour.

The different French breeds seem to have found their level. Without the immense numbers being shown that for a year or two made their appearance, a good prize list will always command well-filled classes of Crèves and Houdans. The former have been particularly good in 1877, fine crests being shown combined with great size. We are glad to see some of their admirers showing birds with shorter legs. A fine round breast and short legs are, in our opinion, great merits in a Crève. Houdans have not progressed of late. The show of them at the Crystal Palace was not

first-rate. Crooked legs seem a prevalent fault in them; still they are found a thoroughly useful fowl, and we see them in many a small back yard where just a few fowls are kept for eggs. La Flèche have been found unsuited to the English climate and become fewer and fewer.

We should like to see a large addition to the practical admirers of Polish. Practical we say, for nearly everyone admires them when seen, though few cultivate them. They are admirably adapted to the many who keep a few birds for laying at the end of a suburban villa garden, so tame, interesting, and contented are they. Provided only their whole run is covered over and nicely sanded or gravelled they will keep healthy in a very small space, seldom attempt to fly, and when occasionally let out on a fine day to run on a lawn or meadow are a charming sight. The very circumstances which are of the greatest advantage to most breeds—viz., a large and free range, are positively detrimental to Polands, for their crests become wet and matted in rain or wet grass, they lose their way, and catch colds.

In the "Poultry Book" we find ten varieties as then existing, but only three are now shown. It is a pity that no one now, as Mr. Vivian seems to have done twenty-five years ago, makes a collection of all the procurable varieties. We have ourselves seen a pair of Cuckoos and several Buffs within the last few years at shows, though none in 1877. Only last spring we saw a handsome Cuckoo in the Jardin d'Acclimatation at Paris, and some pure Whites in Italian farmyards. Of the kinds now shown the White-crested Blacks are at present as good as any we have ever seen. The Silver and Golden birds have prodigious crests, though often unshapely ones, and we fear that crest carries too much weight in the show pen, for one seldom sees well-marked birds, most of them being neither spangled nor laced.

Malays can never be a really popular breed, but their old admirers stick to them, and when they are well classified a fair entry is always found. Andalusians have improved; their lovely soft colours and useful qualities should indeed make them favourites. To the energy of Miss Arnold is, we believe, due much of their advance in beauty and favour. At the Crystal Palace they struck us as by far the best collection of the breed we had ever seen. Leghorns are becoming widely distributed, thanks to the enterprising "Leghorn Club," and the ugly yellow earlobes which are so much disliked seem disappearing. Silkies are less cultivated than they should be, and we regretted to find them without a class at the Crystal Palace Show. Those shown where classes were given to them were probably the nearest perfect specimens as to all the points desired yet seen. Every rearer of Game or of the more delicate varieties of poultry should keep them as nurses.

The Variety classes have had few startling additions of late. The curious Aseel fowl, or Indian fighting Game cock, has here and there been shown, and has hardly received its due. Through the liberality of Mr. Dutton it is likely to become less rare in this country.

In Bantams the Game varieties have, as of late years, generally been up to a high standard, though by no means so numerous as eight or ten years ago. Black Rose-combed are as popular as ever. We fear beauty of carriage and fineness of sickles in the cocks is often sacrificed to mere smallness. Whites are at a low ebb. Even blue-legged birds have been seen in the prize list. Will no one take up the variety? Some excellent Sebrights, chiefly Silvers, have come out in the past year. Even Mr. Leno has at times been vanquished. The little Pekins are, we believe, now confined to two yards. Some of the best Japanese ever known have appeared, one of the results of Mr. Brassey's interesting voyage in the *Sunbeam*.

Ducks in 1877 call for little observation. The magnificent new Pekin Ducks promise to be a most useful addition to our poultry yards. At Oxford a class was given to them for the first time, and no less than eighteen pairs appeared. The old Embden Goose seems disappearing before the Toulouse, but two pairs of them were entered at Birmingham.

The Turkeys of the present day are certainly a great advance on those of a few years back. The magnificent glow of colouring on many of the cocks and their reddish tinge on the legs shows that the best strains are indebted to crosses with American birds. A year ago we were forced to comment severely on the constant showing of old Turkeys in the classes for young ones. In the year 1877 we were pleased to observe a marked improvement in this matter.

Such is our cursory review of poultry in 1877. The year 1878 promises in its first days to begin in a more seasonable manner than some of its later predecessors. We trust for the poultry fancier's as well as for others' sake that it may so go on, and that winter may precede and not follow a balmy spring. We may then hope in due time to hear of an excellent hatching season, and later on to see abundant chickens both on the table and in the show pen.—C.

THE BORDER COUNTIES SHOW OF POULTRY, &c.

THIS Show was held at Carlisle from the 10th to the 12th inst., and was in all respects a success. The entries amounted to

about 1100. The hall is a grand one for the purpose, although in the cases where the pens were arranged near the walls under the gallery (as in the case of the Game and Game Bantams) the light was not good. Turner's pens were used on this occasion.

Game were poor as classes in Black Reds, though there were some good birds included in the list; but the Brown Reds were good in all classes, both the cups going to that variety. *Dorkings*, especially the Silver-Greys, were very good, and the cup rightly placed on the latter variety. In *Brahmas* the cup was awarded to an old Dark cock, and in *Cochins* to a White cock. *Hamburghs* were very good, and the cup went to Gold-pencilled. *Houdans* were very large classes, and some excellent birds were shown, not alone in size and marking but also in that much-neglected point the comb, although several capital pens were left out for scaly legs and feet, a disease very easily cured. Black *Spanish* a small lot, but very good. The Variety class was a good one, comprised of Polish, Black *Hamburghs*, Scotch Greys, &c., and the cup for this section was given to the first-prize pair of Silver Polish. The coveted sewing machine was carried off by a perfect pen of Black *Hamburghs* in the Selling class out of an entry of ninety-three. *Bantams* were very good entries, but the Black Red cocks were badly placed for light, and so good was the quality that most of the pens were noticed, the cup for Game Bantam cocks being awarded here to a very stylish cockerel. In the next class *Piles* won all the prizes, Mr. Addie's, late Brownlie's, champion being first, closely pressed with two beauties. Hens (Black Reds) were not so good as a class as we expected, but the winners were very good; but the cup for hens went to the next class for the best Duckwing pullet we remember. Black Rose-combed were the best class of that variety we have ever seen, and the cup for these and the next class was awarded here. Variety class.—First White Rose-combed, second Pekin, and third White-tooted. There were some Sebrights, but these were generally too large.

In *Pigeons* *Pouters* headed the list. In cocks a large White was first and a Blue second, the third being Red. Hens were by far the best. First a Blue, second White, and third a Yellow. In *Carriers* the winners were very good in both classes. The first-prize hen a very heavy well-wattled Black. In *Barbs* a Black hen was placed first, second a Black cock very pale in eye, and third a Dun. Short-faced *Tumblers* were a grand class, as may be seen by the list. First was a grand all-round Almond cock, second a hen, and third a grand-headed Kite. In Long-faced *Tumblers* first was a nice Yellow Mottle, very bright in colour; second a Black Bald cock; and third a Red Mottle. *Fantails* were a very good class; first and second White, and third Blue; the first a real Scotch Fancy, with perfect circular tail. *Jacobins* were the very best class we ever saw, and the competition uncommonly close. A very small well-hooded Red hen first, a Red cock of grand all-round properties second, and a very small Red hen third, and almost every pen noticed. *Turbits* were very good, the whole of the winners Blues. *Owls* poor except the winners. First a champion Blue English, and second and third Foreign Whites. *Antwerps* a poor entry, but the birds good; the same remarks applying to the *Dragoons*. *Magpies*.—First Red, second and third the smallest of small Blacks. *Archangels* were very good in colour and points.

In *Cage Birds* the nervous-looking but graceful Scotch *Fancy* headed the list with Clear and Marked classes, the first-named being by far the best and containing some of the best Yellow birds we have ever seen, combining shape and style with carriage and colour. Yellow *Norwich* were very good and well shown, but the best of these was the first-prize Buff. Crested *Norwich* were only good as regards the winners. The first, a grand light marked bird with splendid crest, was rather dirty. The Variety class was a puzzle, so good were the birds shown. The first was, however, given to a capital Belgian, second to a perfect Lizard, and third to a good Belgian. In *Mules* there were some grand ones. First in Yellow Goldfinch was almost clear but slightly ticked, large and good in plumage; second a four-pointed one, the extra prize going to a Clear Buff, large and grand in all points. In the Variety class first was a nice bird, but not as large as we have seen from a Goldfinch and Bullfinch; and second and third Buff *Linnets*. Goldfinches and Bullfinches were both grand classes, but *Linnets* poor except the first-prize bird.

POULTRY.—GAME.—Black Red.—Cock—1, J. Brough. 2, J. Bell. 3, S. Matthews. *etc.* E. Winwood. Cockerel—1, J. Brough. 2, J. Reddick. 3, E. Winwood. Hen—1, Walsh & Walker. 2, S. Matthews. 3, T. Bellman. BROWN RED.—Cock—1, Cup, and Special, C. W. Brierley. 2, J. A. Mather. 3, T. Raines. Cockerel—1, A. Cameron. 2, Riley & Cooper. 3, W. & H. Adams. Hen—1 and Cup, W. & A. F. Fenwick. 2, T. Parker. 3, S. Matthews. *etc.* W. Rudd. Any other variety.—Cock or Cockerel—1, S. Matthews. 2, W. & H. Adams. 3, H. A. Clark. Hen—1, J. F. Crowther. 2, T. Bellman. 3, C. W. Brierley. DORKING.—Cock—1 and Cup, W. Wallace. 2, Mrs. Whitwell. 3, Capt. G. F. Lyon. *etc.* J. Cunningham. Hen—1, Capt. G. F. Lyon. 2, J. Holaday. 3, J. Cunningham. Any other variety.—Cock—1, H. Stevens. 2, F. Suowden. 3, A. Paisley. *etc.* A. Mitter. Hen—1, J. Walker. 2, T. Briden. 3, J. Copple. *etc.* H. Beldon. BRAHMA FOOTRA.—Light.—Cock—1 and 3, J. & W. Birch. 2, J. F. Smith. Hen—1 and 3, J. & W. Birch. 2, J. F. Smith. *etc.* T. A. Dean. Duff.—Cock—1 and Cup, J. F. Smith. 2, J. Walker. 3, R. Hargreaves. *etc.* Dr. J. Macrae. Hen—1 and 3, J. Sandeman. 2, J. Walker. COCHIN-CHINA.—Cinnamon Buff.—Cock—1, J. Walker. 2, A. Bamford. 3, G. H. Proctor. *etc.* T. Wagh. Hen—1 and 3, J. Walker. 2, J. Wood. Any other variety.—Cock—1, Cup, and 2, A. E. W. Darby. 3, J. Wood. Hen—1, A. E. W. Darby. 2, Mrs. W. Steven. 3, A. Bamford. HAMBURGH.—Golden-spangled—1 and 3, G. and J. Duckworth. 2, J. Rawnsley. Silver-spangled—1, 2, and 3, J. Rawnsley.

Golden-pencilled.—1 and Cup, G. & W. Duckworth. 2 and 3, J. Rawnsley. *etc.* W. Park. *Silver-pencilled*.—1, H. Beldon. 2, H. Pickles. 3, J. Rawnsley. *HOUDANS*.—1, J. Robinson, jun. 2, W. Wright. 3, R. B. Wood. *etc.* J. & R. Martindale. *Chickens*.—1, B. W. Thomas. 2, A. Wither. 3, Mrs. Vallance. *etc.* Dr. J. Macrae. R. B. Wood, J. Graham. *SPANISH—Black*.—1, J. Norval. 2, W. R. Bull. 3, J. Thresh. *etc.* H. Wilkinson. *ANY OTHER VARIETY EXCEPT BANTAMS*.—1 and Cup, H. Beldon. 2, C. F. Copeman. 3, J. Rawnsley. *etc.* R. Beed. W. Girdwood. A. & W. H. Silvester. J. & A. Laird. *SELLING CLASS*.—1, S. Garnett. 2, W. A. H. Fenwick. 3, H. Beldon. 4, J. Wilkinson. 5, J. Cople. *etc.* J. Walker. G. & J. Duckworth. H. Yardley. A. & W. H. Silvester. *GAMES BANTAMS—Black or Brown Red—Cock*.—1 and Cup, E. Walton. 2, G. Brough. 3, W. Harrison. *etc.* G. Davie. E. Walton. W. F. Aiddle. Duncan & Kennedy. *Hen*.—1, G. Coulthard. 2, W. F. Aiddle. 3, E. Barker. *etc.* G. Brough. J. Nelson. W. Rudd. *Duckwing or Pile*.—1, W. F. Aiddle. 2, G. Coulthard. 3, J. Dixon. *etc.* R. Brownlie. E. Walton (2). *Any other variety*.—1 and Cup, J. Nelson. 2, G. Coulthard. 3, R. Brownlie. *etc.* E. Walton. G. Coulthard. *BANTAMS OTHER THAN GAME—Black Rosecomb*.—1 and Cup, J. W. Crowther. 2, W. H. Shaeckleton. 3, E. Walton. *etc.* H. Beldon. H. W. & H. King. W. R. Henderson. *Any other variety*.—1, J. W. Crowther. 2, H. H. Smith. 3, J. Brigham, jun. *etc.* J. Walker. A. B. Ferguson. H. W. & H. King. *DUCKS—Rouen*.—1 and Cup, J. Walker. 2, F. C. S. Rawson. 3, Mrs. T. Lamb. *Any other variety*.—1, J. Walker. 2, A. & W. H. Silvester. 3, T. Blaylock. *etc.* J. Walker. R. Mann. H. B. Smith. Mrs. F. Grant.

PIGEONS—Pouter.—Cock. 1, J. & W. Towerson. 2, A. & R. Hutchinson. 3, T. Steel. *Hen*.—1, A. & R. Hutchinson. 2 and 3, H. R. Teeney. *CARRIERS—Cock*.—1, J. Walker. 2, H. Yardley. 3, J. & W. Towerson. *Hen*.—1, J. Booth. 2, J. Walker. 3, H. Yardley. *BABBS*.—1, W. Harrison. 2, J. Thresh. 3, H. Yardley. *TUMBLERS—Short-faced*.—1 and 2, H. Yardley. 3, W. Brydone. *etc.* J. Coupland. W. Brydone. *Long-faced*.—1, H. Yardley. 2, J. Thresh. 3, J. Wilson. *etc.* C. F. Copeman. H. Yardley. *JACOBS*.—1, W. Harrison. 2, W. and R. Davidson. 3, E. Norman. *etc.* T. Holt (2). A. Leith. *PANTAILS*.—1, J. Watara. 2, J. F. Loversidge. 3, H. Yardley. *TURBITS*.—1, W. Harrison. 2, J. Taylor. 3, W. Brydone. *OWLS*.—1, A. Duthie. 2, J. Booth. 3, H. Yardley. *etc.* W. A. Fishburn. E. Norman. *ANTWERPS*.—1 and *etc.* H. Yardley. 2, H. Rawnsley. 3, J. Booth. *DRAGONS*.—1, J. Booth. 2, H. Beldon. 3, A. Leith. *MAGPIES*.—1, H. Beldon. 2, H. W. Webb. 3, H. Jacob. *ARCHANGELS*.—1 and *etc.* H. W. Webb. 2, J. Cowe. 3, H. Jacob. *ANY OTHER VARIETY*.—1, W. Brydone. 2, H. Yardley. 3, H. Beldon. *etc.* W. Mann. H. Yardley. W. Brydone. W. & J. Towerson. J. Williamson. *SELLING CLASS*.—1, J. Williamson. 2, H. Beldon. 3, E. D. Carless. *etc.* E. Norman. J. Williamson.

CAGE BIRDS—SCOTCH FANCY—Yellow or Buff.—1, 2, and Extra, J. Thorpe. 3, J. Lightfoot. *etc.* J. Grant. W. Veltch. J. Vose. Mrs. A. Jardine. R. Anderson. J. Hamilton. *SCOTCH FLECKED—Yellow or Buff*.—1, J. Thorpe. 2, D. Tweedie. *etc.* J. Armstrong. J. McVittie. J. Thorpe. *NORWICH—Yellow*.—1, Stevens & Tenniswood. 2, J. J. Reeson. 3, Extra. Stevens and Tenniswood. 2, C. Nevill. *Variegated Yellow or Buff*.—1 and Extra, R. Atkinson. 2, J. Reeson. *Crested Yellow or Buff*.—1, F. Knaggs. 2 and *etc.* R. Atkinson. *ANY OTHER VARIETY CANARY*.—1 and Extra, J. Alderson. 2, Stevens & Tenniswood. 3, R. Atkinson. *etc.* T. Graham. J. Ruddick. J. Armstrong (2). R. Atkinson. *MULES—Yellow*.—1, Stevens & Tenniswood. 2, A. Young. *Buff*.—1 and Extra, J. Reeson. 2, W. T. Armstrong. *etc.* T. Wilson. Miss M. Duncan. C. Nevill. A. Young. *Any other variety*.—1, T. Drake. 2 and *etc.* Stevens & Tenniswood. 3, C. Kevin. *GOLDFINCH*.—1, R. Pearson. 2, J. Thorpe. 3, J. Richardson. *BULFINCH*.—1 and Extra, R. Anderson. 2, R. Pearson. *etc.* R. Atkinson. *LINNETS*.—1, Extra, and *etc.* R. Pearson. Stevens & Tenniswood. *LARKS*.—1 and Extra, Master F. Coulthard. 2, W. T. Armstrong. *ANY OTHER VARIETY OF NATIVE BIRD*.—1 and Extra, W. T. Armstrong. 2, J. McVittie. *FOREIGN BIRDS*.—1, R. Ward. 2, R. Pearson. *etc.* T. Drake. R. Sutherland. *SELLING CLASS*.—1, W. Burniston. 2, Stevens & Tenniswood. 3, W. T. Armstrong. *SINGING CANARY OR MULE*.—1, J. Robinson. 2, J. Robinson.

JUDGES—Poultry, except Bantams: Mr. R. Teebay, Preston. *Bantams, Cage Birds, and Pigeons*: Mr. E. Hutton, Pudsey, Leeds.

NATIONAL PERISTERONIC SOCIETY.

A VISIT to the annual Show of this Society is not only interesting and pleasurable but profitable to the critical fancier, for it is here that he sees at a glance the state of the fancy as it exists among the principal columbarians of England, perhaps more especially the southern part of it. Here it is he can draw comparisons with the by-gones and the present, and can somewhat speculate on the future, and there is much to meet the eye of the keen observer as regards the bias of certain breeders for particular forms and types of the same variety. Perhaps in no case is this more observable than in that of Dragon. Here, according to the pens of birds shown, seems to exist a vast difference of opinion, one exhibiting a pen of decidedly very heavy-wattled birds, and what the old Dragon fancier proper would call Horsemen and not true to anything, while another rushes off into the opposite extreme with a pen of spindle-beaked birds, which are but a slight remove from what is known by the name of "Skinnum." Now to my mind the best type of the true Dragon was to be found in the pen shown by Mr. Tegetmeier. I allude to the birds with the stout beaks, with thin, close, compact wattles, that of the eye being of a blue tint like the colour of the bird itself. Mr. Whitehead also had some birds which he evidently was trying to breed-up to this standard, for standard it is of the true Dragon. Mr. Shaw's Yellow hen amongst Yellows was well worthy of study, but the majority of the birds of this colour carried far too much eye-wattle and of the wrong colour, while others led-off in the direction of the Scanderoon with their down-hooked beaks, while the Whites left but little doubt of their origin. How it startles the old fancier to hear £20 offered for a Blue Dragon and refused. Yet such was the case with one of Mr. Tegetmeier's birds. Space to-day precludes my finishing my remarks on this excellent and instructive exhibition, but I hope to resume the task on an early date.—HARRISON WEIR.

VARIETIES.

ONE of the most disagreeable pests to the sitting hen and to chicks is lice. The nest should be well sprinkled with carbolic powder, but where it will not come in contact with the eggs when the chicks are first hatched, rub sulphur and lard, well mixed, on the poll of the head, under the wings, but more par-

ticularly around the vent. I suppose this location is chosen for their carnivals, for they congregate in large numbers, but sulphur and lard have the desired effect. Some have used kerosene with success, others to their sorrow.—A.

THE General Steam Navigation Company has been fined £20 for cruelty to animals imported from the Continent. Only those who are in the habit of making the journey between London and Antwerp or Rotterdam can form the smallest idea of the atrocities to which the unhappy creatures who are brought over by the vessels of this Company are subjected. I made the journey one stormy night in company with 1828 sheep, piled one on the top of another like herrings in a barrel. The stench throughout the night was overwhelming, and the spectacle when the "Leo" arrived at Miller's Wharf is never to be forgotten.—(The Tatler).

"M. C." COMMUNICATES to *Land and Water* the following facts about milk.—It has been discovered from chemical analysis that the evening's milk is richer than morning's. Professor Boedeker has analysed the milk of a healthy cow at different periods of the day, and found that the solids of the evening's milk (18 per cent.) exceeded those of the morning's milk (10 per cent.) while the water contained in the fluid was diminished from 89 per cent. to 86 per cent. The fatty matter gradually increases as the day progresses. In the morning it amounts to 2½ per cent., at noon 8½ per cent., and in the evening 5½ per cent. The practical importance of this discovery is at once apparent, inasmuch as it develops the fact that while 16 ozs. of morning milk will yield but ½ oz. of butter, about double the quantity can be obtained from the evening's milk. The casein is also increased in the evening's milk from 2½ to 2½ per cent., but the albumen is diminished from 44-100ths per cent. to 31-100ths per cent. Sugar is least abundant at midnight (4½ per cent.) and most plentiful at noon (4½ per cent.) The per-centage of the salt undergoes almost no change at any time of the day.

A CORRESPONDENT writing in the *Agricultural Gazette* on whole r. pulped roots states that our predecessors gave far too many turnips in a day to fattening oxen is certain. That pulping roots is excellent husbandry in some cases is equally certain. But none the less it is true that, to give the finish to a full-grown bullock, a few white turnips given whole (in their season) is the best method of employing the turnips. The animal seems to get all the juice so, unaltered by the air or by the knives; and the turnips, used salad fashion (and white turnips should be consumed for such animals more as salad than as anything else), clean the mouth, provoke saliva, and create an appetite for the meal, cake, hay, &c., which are the real providers of the finishing fat. At all events, besides the famous authority at Tillyfour, and Mr. Read, several first-rate feeders to my knowledge have reverted to the old plan, in October and November, with their Christmas beasts, and believe themselves to be justified by the result. When swedes come on they are sliced. Yet this is not written to disparage the pulpers in their proper place.

A CORRESPONDENT in admitting the usefulness of the "simple chicken coop," figured on page 39, remarks that in the case of casks hooped with iron it would not be easy to divide the barrels longitudinally without first removing the hoops. This, he says, may be done, and the casks may be prevented falling to pieces by affixing a couple of wooden hoops inside the barrels to which the several parts can be tacked. The casks can then be divided, and permanent half-circular hoops of iron can be placed on the outside for making them firm and strong.

WARM FOOD FOR CATTLE.—Thirty years of experience in this matter has convinced one and all on my farm of its advantage. We usually had forty, and often many more head of cattle, young and old. A closed tank of water was heated by the waste steam, and as the lad or feeder mixed the cut chaff, bran, malt, or cake in the iron tubs sunk level with the floor, an occasional pail of this hot water was thrown on the mass, layer by layer, until it was piled high above the rim. The waste steam passing around these iron tubs kept their contents hot. After a few hours the reeking mess was carried to, and spread over, and mixed with the pulped roots, and then placed in the bullock mangers. We could never fat animals so quickly as by these means. It is a decidedly paying operation.—J. J. MECH.

FOOD FROM ABROAD.—Last year the amount paid to foreign nations for corn, cattle, and meat was £96,879,737, to contrast with £87,129,886 in 1876. For live stock the sum disbursed was, in 1877, £6,015,690, as against £7,260,303 in the preceding year. The items for fresh meat were much larger, consequent upon the shipments from America and Canada of quantities of beef and carcasses of mutton. The total sum paid for foreign stock alive and dead was, in 1877, £17,813,674; in 1876 it amounted to £19,030,455. For corn last year the sum paid was £68,192,224; in 1876, £61,584,648. Butter cost in 1877, £9,538,305; cheese, £4,768,053; and eggs, £2,472,481, to be compared respectively with £9,702,624, £4,251,428, and £2,610,281.

A CORRESPONDENT of the *Ohio Farmer* gives the egg-producing capacity and weight per dozen of eggs of various kinds of fowls, as they came under his notice, as follows: Light Brahmas

and Partridge Cochins, eggs seven to the pound lay 180 per annum. Dark Brahmas, eggs eight to the pound, lay 120 per annum. Black, White, and Buff Cochins, eggs eight to the pound, lay 115 per annum. Plymouth Rocks, eggs eight to the pound, lay 150 per annum. Houdans, eggs eight to the pound, lay 160 per annum. La Flèche, eggs seven to the pound, lay 180 per annum. Crève Coeurs, eggs eight to the pound, lay 140 per annum. Black Spanish, eggs seven to the pound, lay 140 per annum. Leghorns, eggs eight to the pound, lay 160 per annum. Hamburgs, eggs nine to the pound, lay 150 per annum. Polish, eggs nine to the pound, lay 125 per annum. Dominiques, eggs nine to the pound, lay 185 per annum. Game, eggs nine to the pound, lay 180 per annum. Bantams, eggs sixteen to the pound, lay 90 per annum.

WARMTH AND VENTILATION.

In a cold and variable climate like ours bee life is one of suffering during the winter months. In frosty weather bees are in the "arctic regions" without the least hope of finding a short north-western passage. In prospect of spending a winter in the Arctic seas our sailors are provided with the warmest possible clothing and heat-generating food. In cold climates human beings require food with much carbon in it to keep up the heat of their bodies, and clothes to keep it in after it is produced. Nature, in the case of animals of various kinds, covers them with hair, and wool, and feathers on the approach of cold weather. The All-wise Creator covers them with good warm coats. Bees left to themselves in this country seek protection. Fugitive swarms seek and generally find shelter in human dwellings or in trunks of old trees. Bees are little fragile creatures, and while placed under artificial treatment and are in the hands of men they should be well protected. All hives in this country should be well covered from November till April. If I were asked what covering I would prefer for a hive in winter I would say a large woolly sheep's skin turned inside out and tied closely round the hive. But sheep's skins are too dear for this work, and we have to look out for old carpets and matting, hay, straw, and old newspapers. A good straw covering outside and an inside stuffing of soft dry grass 8 inches thick make a warm protection for a hive. All winter coverings should be left on till April that early spring breeding be not hindered.

Ventilation is another phase of bee-keeping that has not been fully considered. The ventilation of human dwellings is now receiving more attention than formerly. The last published great work on chemistry by Professor Roscoe and his assistant in Owen's College treats largely on the importance of proper ventilation in houses. Our best pine and grape-growers attach great importance to the admission of fresh air to their pineries and vineries. In bee-culture the same principle holds good; both warmth and ventilation are necessary. No one can say what amount of fresh air is needed in a bee hive. In hives properly constructed or made of proper materials the bees have the power of regulating the supply to a certain extent. For instance, if straw hives are too softly made or loosely sewed the bees use a good deal of propolis for daubing or plastering the insides of their hives. In hives properly made they use very little propolis. Hives here that have been filled and emptied many times, or used for many years, have scarcely received a touch of propolis; and I have seen a hive so firmly and closely sewed that it did not let the moisture of the bees escape; the moisture ran down its sides as it does in wooden hives. The question of ventilation of hives will yet have more attention from our friends of the bar-frame school. My powers of invention are not great, otherwise I might produce a bar-frame and get a patent for it. Some two or three years ago I visited the apiary of a Cheshire gentleman who had just begun to keep bees. He showed me a bar-frame hive which he had just made. It was a model hive for neatness and appearance; it was perfect, too, so far as ventilation goes. Two holes about 8 or 9 inches square were made in the sides of the hive and neatly covered with Indian matting—I think it is called by that name, and is often used in lining and decorating the summer-houses of English gardens. If bar-frame hives be made large enough after the pattern I have been trying to describe—viz., with large spaces in their sides cut out and covered with proper matting inside and out, with soft dry hay between the matting, they will for health and excellence surpass all the hives yet produced by the bar-frame school, and, so far as ventilation goes, be on a par with straw hives. I commend this suggestion to the consideration of hive-makers, and the consideration of warmth and ventilation to all bee-keepers.—A. PETTIGREW.

OUR LETTER BOX.

ARTIFICIAL HATCHING (M. A.).—No incubator yet invented has proved satisfactory. The temperature required for hatching is about 105°.

FEEDING FOWLS (E. L. P.).—The cause of the fowls being thin is that they have been very fat and are diseased. Disease with them, as with other animals, shows itself by loss of appetite. The feeding has probably had nothing to do with the laying. You cannot expect winter laying from hens; it is against nature. The pullets should lay, but if a few eggs are produced

you must be satisfied. The writer of this has hundreds of pullets, and does not average daily seven eggs per hundred pullets. The numbers will now increase. To come back to feeding. If you have no one you can trust you must act yourself for a few days. Spite of their thinness we advise you to keep them very short of food for a few days, then have a small quantity of ground food (oats or barley) mixed and feed yourself. Leave off as soon as they seem careless about it. At midday let them have some maize or barley, and ground food again in the evening. There is no yard without waste, and it arises from food lying about. Two days' feeding will show you the quantity they consume. Let that rule the supply. You will soon find out the economy of it, and your birds will do better. Nothing is more difficult than to name the quantity of food a number of fowls should consume. It requires to know the nature of their run and the amount and quality of the food it affords. A gravel run, however extensive it may be, affords no food, while one of half the extent, but of grass, will supply many indispensable meals. Again, it must be known what the previous feeding has been. Fowls that have been kept on short commons will for a time eat voraciously, and then settle down to a fair average. We advise you to give no whole corn, except a feed of maize at midday. Let your other feeding be of ground oats or barley meal slaked with water, and given morning and evening. We have never done good with Indian meal; our fowls would not eat it. They eat it whole readily, and its effect is (different from your experience) to make everything very fat. This fat disappears before the fire, and the lean acquires many of the properties of Indian rubber so far as eating is concerned. Give the scraps as part of the daily food, and not in addition to it.

BIRD SHOW (Inquirer).—We understand that there is to be a Show at the Alexandra Park. Wait until you see it is advertised.

BEE BOOK (A Beginner).—Pettigrew's "Handy Book of Bees" is published by Blackwood & Sons, price 3s. 6d.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain.
1878.	Barometer at 33° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
Jan.		Dry.	Wet.			Max.	Min.	In sun.	On grass		
We. 9	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Th. 10	30.140	35.0	33.8	N.	40.0	40.0	33.0	66.9	29.3		
Fri. 11	30.239	36.0	34.4	N.	38.0	41.7	33.8	69.4	29.1		
Sat. 12	30.618	31.4	29.6	N.N.E.	38.6	39.0	29.3	65.1	21.6		
Sun. 13	30.666	33.2	31.2	N.N.W.	37.6	35.5	29.9	57.8	22.3		
Mon. 14	30.584	40.4	37.8	W.	37.0	45.5	33.2	49.6	31.3		
Tu. 15	30.394	45.2	43.7	S.	38.9	51.6	39.8	53.4	37.8		
	30.298	49.0	47.5	W.	41.0	54.8	44.9	70.5	42.6		
Mean s	30.423	38.6	36.9		38.9	44.0	34.1	59.5	30.6		
									0.037		

REMARKS.

- 9th.—Cold morning but fine; rain at night.
 10th.—Very fine bright day, damp in early part of evening, but fine moon-light night.
 11th.—Fine frosty morning, after part of the day rather dull.
 12th.—Sharp frost till night, cold and dull day.
 13th.—Warmer, overcast, and dull, with a little rain at intervals.
 14th.—Fine but not bright day, warm in afternoon and evening.
 15th.—Fine early, and variable during the day, slight showers, bright sun, fine sunset, and cloudy evening.
 Owing to a moderate frost on the 11th and 12th the temperature is rather lower than in the previous week, in spite of the high temperature of the 16th. Very little rain.—G. J. SIMONS.

COVENT GARDEN MARKET.—JANUARY 16.

We are now quite without either English or French Pears, our supply being entirely drawn from California. Some fine specimens of Easter Beurre having reached us since Christmas, though the bulk have arrived in bad condition owing to the mild weather they have come through. Apples are short; good samples being in request, especially Blenheim. Late Grapes appear to be keeping badly, consequently the supply is in excess of the demand, and prices low. Kent Cobs are in fair request.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	1	1	0	0	Melons.....	each	0	0	0
Apricots.....	dozen	0	0	0	Nectarines.....	dozen	0	0	0
Chestnuts.....	bushel	10	0	0	Oranges.....	100	3	0	0
Currents.....	1	0	0	0	Peaches.....	dozen	0	0	0
Figs.....	dozen	0	0	0	Pears, kitchen.....	dozen	1	0	0
Filberts.....	1	0	0	0	Pears, dessert.....	dozen	2	0	0
Gobs.....	1	0	0	0	Pine Apples.....	1	0	0	0
Gooseberries.....	1	0	0	0	Plums.....	1	0	0	0
Grapes, hothouse.....	1	0	0	0	Raspberries.....	1	0	0	0
Lemons.....	100	6	0	0	Walnuts.....	bushel	5	0	0
					ditto.....	100	0	0	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	dozen	3	0	0	Mushrooms.....	pottle	1	0	0
Beans, Kidney forced.....	100	1	0	0	Mustard & Cress.....	punnet	0	2	0
Beet, Red.....	dozen	1	0	0	Onions.....	bushel	2	0	0
Broccoli.....	dozen	1	0	0	Pickling.....	quart	0	4	0
Brussels Sprouts.....	1	0	0	0	Parsley.....	doz. bunches	3	0	0
Cabbage.....	dozen	1	0	0	Parsnips.....	dozen	0	0	0
Carrots.....	bunch	0	4	0	Potatoes, frame.....	1	0	0	0
Capecums.....	100	1	0	0	Potatoes.....	bushel	3	0	0
Cauliflowers.....	dozen	2	0	0	Kidney.....	bushel	5	0	0
Celery.....	dozen	1	0	0	Radishes.....	doz. bunches	1	0	0
Coleworts.....	doz. bunches	2	0	0	Rhubarb.....	dozen	0	1	0
Cucumbers.....	each	1	0	0	Salsify.....	bushel	0	1	0
Endive.....	dozen	1	0	0	Scorzonera.....	bushel	1	0	0
Fennel.....	bunch	0	3	0	Seakale.....	basket	6	0	0
Garlic.....	1	0	0	0	Shallots.....	1	0	0	0
Herbs.....	bunch	0	2	0	Spinach.....	bushel	2	0	0
Lettuce.....	dozen	1	0	0	Turnips.....	bunch	0	3	0
Leeks.....	bunch	0	2	0	Veg. Marrows.....	each	0	0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	JANUARY 24—30, 1878.	Average Temperature near London.			Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h.	m.	h.	m.	h.	m.	h.	m.			
24	TH	Royal Society at 8.30 P.M.	44.8	32.6	38.5	7	52	4	33							24
25	F	Royal Institution at 8 P.M.	44.6	32.4	38.5	7	51	4	34	0	36	10	2	1	12	25
26	S	Royal Botanic Society at 3.45 P.M.	45.3	32.6	39.0	7	49	4	36	2	1	10	23	23	12	26
27	SUN	3 SUNDAY AFTER EPIPHANY.	44.2	30.8	38.1	7	48	4	38	3	24	10	50	24	13	27
28	M	Royal Geographical Society at 8.30 P.M.	45.4	30.8	38.9	7	47	4	40	4	40	11	28	25	13	28
29	TU		45.7	32.0	38.8	7	45	4	42	5	44	0	20	26	13	29
30	W	W. Aiton died, 1798.	44.4	32.4	38.4	7	44	4	43	6	34	1	23	27	13	30

From observations taken near London during forty-three years, the average day temperature of the week is 47.9°; and its night temperature 31.9°.

VEGETABLE CULTURE.

CHAPTER IV.—THE CAULIFLOWER.

ALTHOUGH the date of the introduction of the Cauliflower into this country does not appear to be exactly known, most authorities agree that it was brought from Cyprus to England about the end of the sixteenth century. However, be this as it may, it is now one of the most esteemed vegetables we possess; and although the natural season of maturing its produce only extends from June until November, Broccoli, which resembles it so much as only to appear different in name, may be grown to give a supply of heads during every month of the year.

Cauliflower plants to produce the earliest heads in June may be raised in two ways. The first and most generally adopted way is to sow the seed in the open ground in August. The piece of ground selected for the seed bed should be in the most genial part of the garden. As early vegetables are cleared off the south border by this time, a position there is as good as any. When the soil is poor a little light manure should be spread over the surface before turning over the ground with the spade. When the weather is dry immediately after digging form a bed, say 4 feet wide and 12 feet long, or larger or smaller according to the number of plants required, and sow the seed before the damp soil turned to the surface has had time to dry. The surface of the bed should be broken fine with a rake previous to sowing the seed, and the seed may either be sown in rows 6 inches apart or broadcast; we prefer the latter. Sow the seed thinly and cover it over with half an inch of fine soil, which may be gathered from round about the bed. When the weather is very hot a mat or some old piece of canvas should be laid over the bed during the day and removed at night until the young plants can be seen coming through the ground, when covering must cease; and after this until they are well advanced in growth they should be watered liberally in hot or dry weather. It is important that the seed be sown between the 18th and 28th of August, because if sown earlier than the 18th the plants will become too large for wintering properly, and will either fruit prematurely in autumn or early in spring. When sown later than the 28th the plants, should the autumn prove unfavourable, may suffer by weakness and be very late in producing heads. By the end of September the plants are large enough to transplant in a frame, which they require for protection during the winter. We have wintered them under handlights, but they keep equally well and do not require so much attention when planted in a cold frame. The frame should be filled to within 1 foot from the top with rich soil, and the plants should be lifted carefully from the seed bed and dibbled into it 3 inches apart each way. When the weather is good the lights should not be put on during October. It is a common error to protect young Cauliflower plants in autumn before there is any actual necessity for it; consequently the plants become tender before the winter has well begun and suffer accord-

ingly. We never cover-up our plants unless the glass is down at the freezing point and during snow or excessive wet, and we never lose a plant. When it is necessary to place on the lights, they should be drawn off again whenever the weather is favourable. When any leaves decay during the winter they should be at once removed. If another frame can be spared, about the beginning of March the plants should be lifted and planted 6 inches apart. When they cannot all be put into a frame the smallest may be put in along the bottom of a south wall. After planting in frames the lights should be kept on for eight or ten days, but remove them again as soon as possible after this, as it is very important that the plants should be quite ready for planting-out in the open air by the end of March.

They should be transplanted to a south border or the most sheltered part of the garden. The soil in which they are planted should be from 18 inches to 2 feet in depth, with plenty of manure placed convenient to the roots. They should not be pulled up with the hand before planting, but each plant should be lifted with a trowel, so as to secure a good ball of soil and roots. They should be put in 18 inches between the plants and 2 feet between the rows. We generally plant a few rows of early Cauliflower between the rows of early Peas, as the stakes of the latter give them good protection. When frost or very cold winds occur, immediately after planting them out a small spruce branch should be placed on each side of every plant, and when enough of 6 or 8-inch pots can be spared, one turned upside down over each plant at night for the first fortnight is of great benefit to them. Thus are the autumn-sown plants brought forward and disposed of in their last quarters, and their only requirement after this is to draw a little soil to the stem of each plant when it becomes about 1 foot high. It may appear as if there was a good deal of attention wanted to bring them to maturity, but they amply repay it. At the same time, however, autumn-sown plants may not be wholly depended on for the earliest planting. Where a little artificial heat is at command in January or February, a box 2 feet square and 4 inches deep should be filled to the depth of 3 inches with rich soil. Sow the seed thinly and cover it with a little more of the soil, and place the box in a temperature of 60°. With a little water the seed will germinate in a week, when the box must be kept near the glass to prevent the plants from drawing. When about 3 inches high they may be taken into a cooler place, and gradually exposed to the air until they can be planted in the frame like the autumn-sown plants. We have had plants raised in this way equally as fine by the end of April as those sown in autumn.

Successional sowings should be made out of doors from the first week in March until the last week in May. In most gardens there is a small piece of ground, generally on a border, set apart to raise the different young vegetable plants from seed; this spot should always be a sheltered one, and the soil should be enriched with decayed leaves, horse droppings, or any other free root-producing substance. Cauliflowers especially delight in this. In preparing to sow the Cauliflower seed a small bed should be formed and the seed sown similar to the directions given for sowing it in

autumn, only in the spring time it is never necessary to protect it from drought. Birds, however, are very troublesome and frequently destroy much of the seed. Two or three pieces of sticks arched over the bed and an old fruit-tree net thrown over them is an effectual protection. Those not having nets may keep the birds off equally well by dusting the surface of the bed with lime, so as to make it quite white, after the seed has been sown. This also prevents snails from eating the young plants, which they are very liable to do. A sowing once a fortnight during the time specified will keep up a succession. As each batch of plants become 5 inches high the largest of them may be drawn out and dibbled in a fresh bed 4 inches apart. When the plants come up thinly it is not necessary to do this, as they may be lifted with good roots from the seed bed and planted in their permanent quarters as soon as they are 6 or 8 inches high.

The principal crops of Cauliflower may be grown in any of the kitchen-garden quarters that have a good depth of soil, moderately strong, and well enriched with manure. It is no use growing Cauliflowers on a poor soil. In beginning to plant, measure the rows off, leaving 2 feet between each; stretch a line from end to end, then take a draw hoe and mark a drill 1½ or 2 inches deep along it; plant the Cauliflowers in this 20 inches apart. It is a great matter to lift the plants with sufficient balls and give them sufficient water to prevent them from drooping down after planting. For the first three weeks or a month after planting they are never safe from snails; these pests nibble strong plants off by the ground in a very short time. Immediately after planting a few handfuls of fresh lime and coal ashes mixed should be spread round the stem of each plant. In wet weather this may be renewed every week. At the same time the plants should be looked over every morning and every snail seen be destroyed. Precautions of this kind will often prevent much annoyance. Ground very full of snails and worms should have a coating of hot lime dug into it before planting any of the Cauliflowers.

As soon as the plants are 10 inches or a foot high the ground should be deeply Dutch-hoed amongst them, and afterwards a good quantity of earth should be drawn to their stems. When the weather is very dry a good watering with liquid manure once a week when the heads are forming assists them greatly. Worms sometimes attack their roots when they are well advanced in growth, which causes the leaves to droop and die. If applied in time a watering with strong lime water will often save the plant. Before the plants are half grown heads no larger than an egg cup often form; this is caused either by the plants being left too long in the seed bed or through poor cultivation. Cauliflower heads should always be cut before they show signs of opening. When there are more heads ready for use than is wanted, they may be kept in good condition on the plants for a week by breaking the leaves half through and turning them over on the head so as to entirely exclude the light. They may also be kept good for a long time by lifting the plants with a ball of soil and placing them closely together in a cool shed or cellar. This plan should always be adopted in autumn when there is any danger of injury from frost.

There are no very serious diseases that affect the Cauliflower. When the plants are young some of them often form little clubs on the base of the stem at the roots; these are caused by a small white grub which is found in the centre of the knob. When the knobs are observed before planting and cut so as to kill the worm the plants will not be injured further by it, and growth will proceed as well as if it never had been touched. After the plants have been planted out and when they are getting a fair size many of them lose their centre, only a few of the outside leaves being left, and although some of them may push a new crown they are never half so fine afterwards. This damage is done by a small insect resembling the Turnip fly. Whenever there is the least appearance of it a small quantity of soot or lime should be thrown with the hand into the centre of each plant; we have found this stop their progress when all else failed.

For general cultivation we depend chiefly on three sorts—viz., Early London, Walcheren, and Veitch's Autumn Giant. No more than these need be grown, as they possess all that is required. A pinch of each of them should be sown in autumn, and they will follow each other in bearing in spring. The three should again be sown in the succession named in spring. After the middle of April the Autumn Giant is the only one that should be sown. Early London comes in earliest,

and produces compact white heads. Walcheren is later, and the heads are a little larger than the first-named. Veitch's Autumn Giant is the finest Cauliflower in cultivation. The heads are immense in size, very hardy and firm, pure white, and excellent in flavour.—A KITCHEN GARDENER.

KEEPING GRAPES—DEW.—No. 2.

REFERENCE was made on page 43 to the extraordinary quantity of water received by the Vine borders at Drumlanrig? At the first glance upwards of 5 feet of rain during the year and 20 inches of this falling in December appears to be inimical to the keeping of Grapes; but when we consider it in connection with the fire heat that must be continually employed we have no reason for assuming the water at the roots excessive. In all probability if the borders were comparatively dry the Grapes would shrivel. Provided the atmosphere of a house is in a right condition a few inches of rain more or less when the Vines are destitute of foliage will not impair the keeping properties of the Grapes. Moisture at the roots is essential for keeping the berries plump, fire heat and a well-managed atmosphere for preventing their decay. Whether does a bunch of Grapes imbibe most water when it is hanging on the Vines, the roots of which are in an outside border, or when it is cut and has its stalk inserted in a bottle of water? I suspect that, however moist the border may be, the bunch derives still more water from the bottle; yet how well do Grapes keep when "bottled" and placed in a suitable room! Mr. Harrison Weir has recorded on page 5 a case where a portion of a crop of Mrs. Pince was cut and "bottled," and the bunches so treated kept their colour, while those remaining on the Vine lost their blackness and changed to a "foxy reddish purple." I have myself cut Mrs. Pince when the berries showed signs of shrivelling and inserted the stems in water, when their plumpness has been restored and has continued for weeks. I once saw two Vines of this variety growing side by side, the roots of one being inside, those of the other outside; the bunches on the Vine in the dry inside border were shrivelled, while those in the wet outside border were plump and smooth. I doubt if the Grapes at Drumlanrig, great as is the rainfall, absorb more water than if they were cut and "bottled."

It is the moisture condensing on the berries that promotes decay. If the dew can be prevented forming on them they will keep. Where there is much cloud, as at Drumlanrig, there is little dew. Where the temperature is variable, as in "clear bracing" districts, there is at times a great deposit of atmospheric moisture. I am certain that if blinds were provided and could be drawn over the glass during clear cold nights they would do what the clouds do at Drumlanrig—arrest radiation and prevent the surfaces of the Grapes becoming colder than the air surrounding them, and dew and decay would alike be prevented.

The power of Grapes in condensing atmospheric moisture in clear bracing districts is abundantly evident in September when Vines are grown in the open air, for the bunches are clouded with moisture on every clear cold morning. Precisely the same law is in operation in vineries in the winter when circumstances are favourable. It is the gardener's duty to render them unfavourable, and to do this effectually he must be acquainted with the principles of heat-radiation and dew-formation, and must act in accordance with them. That those principles are not familiar to all who have the charge of vineries is apparent from a question that was put to me the other day. "It's all very well," remarked my interlocutor, "you talking about dew getting on the Grapes; but I should like for you to tell me how it gets in the vinery. If glass will keep rain out I should have thought it would keep dew out." I could only reply by asking him how he thought the cold and air got in. The fact is that both the Grapes and glass that covers them radiate heat with great rapidity, more quickly even than metals, and the temperature of their surfaces falls to the dew point sooner than does the surface of a sheet of iron. There is, therefore, no wonder at dew forming on the Grapes in clear bracing districts unless means are adopted for preventing it. Those means are fire heat and ventilation, for blinds to arrest radiation are not yet provided.

Fire heat, I suspect, is occasionally if not frequently applied in vineries at a time when some of it might be dispensed with; and, on the other hand, is withheld when it ought to be employed. What is more common than to find much fire heat applied during dull and rainy weather? yet the glass at that

time is so clear as to prove the absence of condensation, and the berries are so warm that moisture cannot be precipitated on them. A certain amount of fire heat is, of course, necessary in damp weather, and especially if it is cold as well as damp; but in bracing districts liable to sudden and extreme fluctuations of temperature as little fire heat as possible should be employed during mild weather, or injury will inevitably follow when cold days and nights ensue, or rather when the next spell of mild weather follows the cold. The great variation of temperature which the Grapes are subjected to must promote the deposition of moisture on them as certainly as dew forms on the grass during a cold clear morning following a dull mild day in spring or autumn.

But while we find fire heat is freely employed during dull and mild weather, we often observe it is to an undue extent withheld during cold and clear weather. This is a mistake. I have, as have many others, frequently received instructions not to apply fire heat during cold clear weather, because the atmosphere was evidently dry and there was no damp to dispel; yet fire heat was really required, not to dispel damp perhaps, but to prevent the Grapes becoming so cold as to form powerful condensing bodies for the atmospheric moisture during the suddenly and often extremely mild weather succeeding. On several occasions last winter, and on more than one occasion this, striking evidence has been afforded in districts where the weather is alternately clear and dull, cold and warm, of the deposition of moisture on cold surfaces. We have seen and heard of complaints of everything being damp. Not only has the water been said to "come out of walls," but it has made furniture dull and linen clammy. This has always occurred when mild and dull has suddenly succeeded several days of very cold weather; but certainly the water did not come out of the walls, &c., it came out of the atmosphere, and was condensed by the cold surfaces. Exactly the same law operates in vineries when the conditions are favourable. If by non-firing in clear sharp weather the surfaces of Grapes are permitted to become very cold, they will inevitably condense the moisture of the atmosphere when the temperature rises and becomes several degrees warmer than the bunches. When this occurs frequently, and to a great extent, the Grapes cannot be kept sound.

In certain districts and seasons we cannot prevent a deposition of moisture on the bunches, but if we adapt our practice in accordance with the principles of dew-formation we shall very considerably mitigate the decay of our Grapes. —A NORTHERN GARDENER.

IF "A NORTHERN GARDENER'S" premises had been correct no doubt his conclusions regarding the immunity of Grapes from decay here would have been correct also. But his premises regarding the climate are not correct, consequently his solution of the question is not likely to be the true one. He concludes that the climate of this district is remarkable for its equable temperature and absence of dew. But if it be remarkable for anything, it is for its unsteady climate. For its heavy clouds and downpours of rains it certainly is remarkable, but not more so than for its constant and sudden changes from such weather to that of clear starlight skies, and consequently its intervals of rapid radiation resulting in heavy dews and frosts. In this particular feature I have never lived in any climate that approaches the valley of Drumlanrig. Perhaps "A NORTHERN GARDENER" may be surprised when I state that I have seen a fluctuation of 57° in sixteen hours. Particularly about the time that Grapes are at their most critical stage for mould and decay is the locality singularly subject to the rapid alternations I have referred to. The absence of any fear of losing the smallest per-centage of berries has led to a more than usual carelessness in the application of fire heat to guard against the evil. So that neither the one nor the other of the causes named by your correspondent can possibly be credited with the very remarkable absence of decay in Grapes here, as compared to any former experience or observation of mine. Nor does this immunity apply to one but to all varieties of Grapes grown here.

"NORTHERN GARDENER" refers to the question of covering Vine borders to throw off autumn and winter rains. This is a practice that, in the case of Vines not to be started before the middle of February, I have come to regard as an evil. For several years after coming here the Vine borders were covered with wooden shutters resting on supports 8 inches off the surface of the soil. The borders were to my mind in a more unsatisfactory state when so covered than they are now when they are

not covered. Of course, stagnant water about any part of the border is and should be an impossibility when exposed to sometimes 12 inches of rain in one month, a fall which not unfrequently takes place here in the months of November and December. The subsoil is, in the first place, a layer of impervious yellow clay, but when that is removed there is 20 feet or more of open shingle into which a brook would disappear. I have this season made a new border for Peaches, &c., and have removed from 15 to 20 inches of the clay over a surface of 500 feet by 22 feet, and replaced it with brickbats and stones resting on the said bed of shingle.

In changing from one locality to practise in another the very opposite in its geological formation and climate, the practitioner has many of his old notions exploded, and he gets his sympathies very considerably "broadened" regarding the sometimes apparently conflicting directions and discussion which go on in the gardening press.

It may sound rather paradoxical when I say that with a rather heavier and deep loam, and with sometimes within a few tenths of 6 feet of rainfall in the year, vegetation suffers far more from drought at intervals here than in East Lothian with less than half the rainfall. It happens in this wise: Vegetation that makes its growth with a maximum of moisture suffers far more when overtaken with drought than is the case in a drier and steadier climate. Hence I never saw vegetables suffer so much as they do here when overtaken with a period of drought, and to cope with this point in culture a full and complete system of waterworks with great pressure are just now in progress.—D. THOMSON, *Drumlanrig Gardens*.

LATE CHRYSANTHEMUMS.

"A KITCHEN GARDENER" wishes to have Chrysanthemums throughout the month of January, and very reasonably thinks they would be very useful so late in the Chrysanthemum season. Last year I had quantities all through January—indeed, it was into March before the last of them were over. At the present time we have plenty of Chrysanthemums for cutting from, the very latest only showing colour in the bud as yet, so that there is every reason to hope for a good supply during the next four or five weeks. I am not acquainted with any two flowers more useful than the Chrysanthemum and the best varieties of zonal Pelargoniums for supplying cut flowers during the winter season. They are both of the easiest cultivation and last longer when cut than most flowers. I find them indispensable.

In 1876 a reserve lot of Chrysanthemums was planted in the kitchen garden when the main supply was potted into their blooming pots. These planted out were lifted in October and replanted in the front of a late Peach house, the trees being trained against the back wall. Most of the plants in pots were out of bloom by Christmas, while those transplanted from the open ground to the inside front of the Peach house were fine all through January and part of February, and did such good service that this year a large border in the kitchen garden was filled with plants, and late last autumn they were transplanted to every bare portion of wall under glass at all suitable for the purpose, besides a double row in front of the Peach house. Of course, such a method of growing Chrysanthemums will not furnish the fine blooms that growers of this flower try to obtain; but to those who, like myself, require a continual supply of cut flowers during the dreariest portion of the year I am sure they will find the mode of culture referred to of great service.

I have considerably reduced the number of varieties, finding a limited collection as to sorts give more flowers than depending on a great number of varieties. Mrs. G. Rundle, Mr. G. Glenny, Elaine, Fair Maid of Guernsey, St. Justitia, President, Venus, Pyramidale, St. Michael, Julie Lagravère, Mrs. Kaines, and Prince of Wales are a good dozen for cut-flower work. Fleur de Marie (Anemone) is also a good late variety. I grow many more sorts, but I depend on such free and useful varieties as those named for producing a full and long supply of flowers. —R. P. BROTHERSTON, *Tynninghame*.

AMERICAN BLIGHT.

PARAFFIN is a sure cure for American blight if used as received from the stores and applied in winter with a painter's brush. I have trees here that two years ago were smothered with this blight; it hung in strings from the branches. I had them thoroughly painted with paraffin, and now they are per-

fectly clean. Peas before sowing I always soak for eight hours, pouring enough oil to cover them, then drain it off and sprinkle the peas with red lead to dry them. Mice never touch them, and they always vegetate well.—J. GIBSON, *The Gardens, Brentley House*.

ROSES—JUDGING AND CLASSES.

OUR friend "C. P. P.'s" letter will, I feel sure, be read with interest by all Rose exhibitors, as it touches on the vital point for them to know—viz., that their exhibits will be accurately and clearly judged by a given code of rules, which they may read for themselves, study, and work up to. In a previous number of the Journal I endeavoured to give some such practical definite rules for judging Roses by their points and reasons for so doing, and I still see more than ever the urgent need for this being carried out by the grand National Rose Society. Each year our exhibition stands are advancing nearer to perfection, and the time is past when we could almost at a glance detect the best box of blooms. Exhibitors now require judges to go carefully into a numerical calculation from given points. This will entail increased labour. The closer and more perfect the exhibits the greater the labour. Probably there will not be found a more simple and effectual method than that of using small strips of card on which are printed the point numbers. These may be quickly gathered up and recorded by the Secretary's assistant. This plan cannot fail to be accurate and truthful, which is of the greatest importance where a fifty-guinea prize is at stake.

Before the "National" publish their prize list there is another subject which the west of England men would like to see mooted—viz., that the premier class of seventy-two singles should be represented by at least six prizes (however small), to give room and more encouragement to distant exhibitors in this splendid class.—HENRY CURTIS, *Torquay*.

EARLY PEAS.

No one has a garden without making an effort to have early Peas. How success may be wooed and won will always be a matter of interest to many of your readers. I will, therefore, allude to three systems that recently came under my notice in this locality—Clonmel, leaving your readers to infer which, if any, they approve:—1, Sowing in the open ground; 2, In cool frames; and 3, Forcing with heat.

"Carter's Practical Gardener," page 79, recommends sowing-out about the 20th of November, but prefers "sowing in a frame in the beginning of March, hardening-off and planting-out before the end of the month." Here I may note, whether this frame sowing is done in pots or in the frame loam, the young rootlets must necessarily be disturbed in transferring to the open ground. But my principal object in quoting the above is to ask whether it may not well be doubted that sowing in a cool frame in March will give you early Peas.

A gardener of twenty years' experience tells me he has successfully adopted the following plan. Sow in lines on a warm border in November; cover with green furze tops. Put two rows of leafy stakes, one on each side, and joined at the tops, say 18 inches high. Remove those for taller sticks when all danger to the young foliage has passed, and you will have, like him, early Peas in the open ground in May, taking it for granted the soil and manure are suitably rich and properly prepared.

2. With frame culture. I think the following plan, shown me yesterday by Mr. John Crehan, head gardener, Minella House, specially deserving notice. A cool frame with a southern aspect is used. The seeds are carefully deposited in pieces of turf, from which some of the clay has been shook, and these are evenly laid along the bottom on a gentle sunny incline. Over them is strewn some old loam or potting refuse, and more robust or healthier plants one could hardly wish to see, having the great advantage of being gradually hardened-off and of being ready to remove to the seed lines at pleasure without disturbing a rootlet, as the pieces of turf can be lifted easily on the hand without at all interfering with the plants.

3. A third system I saw in this vicinity was in marked contrast. The seed was started in small pots in a lean-to structure, the walls of which were beneath the surface, and in which a warm temperature was regularly maintained. The plants were 3 or 4 inches long, thin and delicate; and I doubt whether, with any prospect of success, you could expose them in a cold damp soil, such as we may necessarily expect during the next

two months, not to mention the chances of a dry east wind, or worse still, a few degrees of frost, or 15°, such as we lately had here.—W. I. M.

IBERIS NANA.

I HAVE read with pleasure what has recently been published on some of the species of this valuable genus of hardy spring-flowering plants. I have a very dwarf-growing Iberis with large round flowers which I esteem very highly. I obtained it several years ago under the name of *I. nana*, and I consider it one of the gems of my rockery. It only grows a few inches high, but its flowers are much finer than some other Iberises of larger growth. It is rather a slow-growing plant, and on



Fig. 12.—*Iberis nana*.

that account is cherished the more, since it is less likely to become common. I know nothing about the origin of this Iberis, but have been told that it is a garden variety. Can you inform me on this point? It is distinct from any others that I have seen, and its large pure white flowers are very beautiful in early spring.—D. D.

[*Iberis nana* is a native of the Piedmontese Alps, and seeds were sent by Dr. Fisher of Gottingen to Mr. Murray of the Glasgow Botanic Garden, who raised plants from them in 1822.—Eds.]

MORELLO CHERRIES AS STANDARDS.

MORELLO CHERRIES are usually planted on north borders and trained to shaded walls. In such positions they succeed well and ripen heavy crops of fruit. It may, I think, be taken for granted that any kind of fruit that will ripen on a north wall, where the sun seldom reaches, will ripen equally well when grown in an open position of the garden, the trees being either trained as espaliers or grown as pyramids and standards. Pyramids of Morello Cherries may occasionally be seen, and attractive and profitable they are; but standards are seldom met with, yet there is nothing to prevent such trees from succeeding.

Morello Cherries will grow and fruit when grown as standards at least as well as will any of the dessert Cherries or as Plums, and yet we find Plums of all sorts grown as standards, and Cherries of the Duke and Heart types, but we rarely find the most certain cropping of all Cherries grown in the same manner.

Those who have a good supply of Morello Cherries know how useful they are for culinary purposes as well as for preserving in brandy for dessert; yet many, it is to be feared, do not possess them, because they have not walls whereon to train

the trees, nor, perhaps, conveniences for growing them as pyramids. Let such try them as standards, and in due time they will have a supply of fruit which the birds will leave until the last, and which the cook will welcome for tarts and the housekeeper for preserving.

Morellos when grown as standards do not make large round-headed timber trees, but form medium-sized trees of a semi-weeping character. When such trees are blooming they are extremely ornamental. Last year I heard a tree described as resembling a "fountain of snow," and certainly no tree in the garden or shrubbery was at the time more beautiful; and in the autumn, when laden with its richly coloured fruit, it was equally attractive. The tree referred to always bears heavily, and both in 1876 and 1877 it was the only tree in the garden that yielded a full crop. Better evidence than that is, I think, not required as to the suitability of this Cherry for that simple mode of culture.

Having observed this profitable old tree, I a few years ago planted two young Morellos as standards, and left them to grow in their own way. The result is highly satisfactory, for they bear prodigiously, and the fruit is fine and ripens well. When thus grown the trees bear little or no fruit in the interior of the heads, but only on the outer branches, which assume a pendant character, and the whole outer surface of the tree becomes a close mass of young wood, from which the fruit can be gathered by handfuls. Little or no pruning is required, but occasionally a slight thinning-out of the branches is necessary, attention in this respect being almost identical with that given to the Black Currant.

Since attention has recently been directed to the subject of growing fruit trees in shrubberies and pleasure grounds, it may be opportune to notice the claims of the Morello Cherry both as an object of ornament and utility. Few other trees are more attractive when in bloom, and no fruit trees afford less temptations to boys and birds when the fruit is ripening. They are thus particularly suitable for growing amongst shrubs. This Cherry, moreover, grows so freely that a check given by the shrubs appropriating the lion's share of the virtues of the soil would be an advantage rather than otherwise, in arresting the exuberant growth of the Cherry trees and promoting their fruitfulness.

Unless there is a north wall in a garden we rarely find Morello Cherries. Latterly, however, they have been planted as pyramids, and have proved to be amenable to pinching and pruning; but the natural character of this Cherry is to bear on the young wood the same as the Black Currant, and the simplest plan of obtaining fruit is to permit the trees to grow in a natural manner and form small semi-weeping standards. Wherever the fruit will ripen on north shaded walls it will ripen in the open where the trees are grown in a free natural manner, and such trees are both pleasing in appearance and profitable.—J. S. P.

SHADING CAMELLIAS AND OTHER SHRUBS.

SOME notes on this subject have appeared in your Journal from the able and practical pen of Mr. Thomson, Drumlanrig. He cites an example of finely flowered Camellias at Wrotham Park many years ago without the use of any shading whatever. I do not at all doubt this; still I am of opinion that shading Camellias at the time they are making their wood when the foliage is tender is generally an advantage. Though it is an advantage, still I have no doubt that the amount of light and sun that a Camellia will stand without being browned or scorched is about the mark to be aimed at—that is, provided the plants are not so affected, the more sun they have the better.

In the conservatory here, in the upper part of it, where ventilation is not well provided, unless we put some white-wash on the glass to check the strong rays of the sun while the wood is young, the foliage is liable to be injured. The plants are large and fine, being nearly 20 feet high, and last season, as they do every year, bore a profusion of flowers. In our Camellia house, where we grow the plants in pots, we find it best also to shade partially.

Mr. Thomson mentions amongst the fine-flowered Camellias *Chandlerii* elegans. Well, I may just note a plant of *Chandlerii* here. It is about 6 feet high in a pot, not quite 2 feet through. All summer we had it in the plant stove, subject to shade or no shade according to the weather. It was literally covered with buds; I reduced them to about two to a shoot. Just now they are of the most beautiful character, opening

half red and half white, and perhaps the only fault is the disproportionately large green leaves of the plant, which harmonise rather coarsely with the beautiful buds. Just now we have Jubilee with very fine flowers, not so much given to the double flower (two flowers in one) as it is sometimes. *La Reine* is one of the most beautiful Camellias. In regard to it I may observe that a large plant about 10 feet high, which stood in the corner of the conservatory, and receiving, as it did, rather more than an average share of sun, the foliage was brown instead of green, and I believe had it been more shaded this would not have been the case. For my part I much prefer a moderate number of flowers and having good foliage to a superabundance of flowers and inferior foliage. This season I had the first white Camellia on the 12th of September, and have had them more or less in profusion since November. We shall have them so in the conservatory until April, when their place is gradually taken by specimen Azaleas, the larger plants being 6 feet by 6 feet. These make a very effectual succession. The light and bright masses of Azaleas under the green foliage of the permanent Camellias is very fine indeed. The white and red varieties of the former are magnificent.—R. M. A.

THE POTATO DISEASE.

THE letters on this subject, including the last, signed "AMATEUR, Cirencester," have already been so ably responded to by "PERONOSPORA" that very little remains to be said. "AMATEUR," however, in his last letter introduces my name, and says, "Still nobody knows how long they [*i.e.*, the resting spores of the Potato fungus] live or where they pass the winter." Now, the whole aim of my late experiments was to solve this difficult problem, and I think it was done somewhat effectually by my keeping the diseased Potato material under daily observation for more than a year. I need hardly remind your readers that when a year had nearly passed away, and just at a time when various enemies and scoffers big and little were busily employed firing shots at me (all misses) my so long quiescent, but not dead, resting spores suddenly started into renewed life and reproduced the fungus of the Potato disease. I at once divided my material into portions and distributed it amongst four or five of the best microscopical observers in this country, and these men one and all confirmed the truth of my observation—that the resting spores germinate after a year's hybernation in decayed vegetable material, water, or earth. Mr. Smee's case is very incompletely stated by "AMATEUR," and the statement as to Professor Tyndall's views is erroneous.—W. G. SMITH.

THE APPLE TREE IN THE PLEASURE GROUND.

MR. COLE's remarks on page 6 apply to a subject of considerable importance, and one which, in a very direct manner, combines beauty with utility. What can be more beautiful than fruit trees in full blossom? and what more useful than the autumn harvest of fruit following? I have often observed the cheerful appearance of Almond trees in pleasure grounds during the blossoming period, but Apples when in full blossom are still more beautiful, and valuable fruit follows in due course; yet in pleasure grounds and villa gardens there is not one Apple tree planted where are a hundred Almonds. Occasionally we see an Apple tree amongst evergreens, and when so it is sure to be admired. Why, then, are not more trees planted? Probably the chief deterring cause is the fear of the fruit attracting the attention of trespassers—a fear I cannot help thinking that is unduly magnified.

A few years ago I was consulted by a retired tradesman as to the best mode of planting the ground at the front of his house so that it might look ornamental from the windows and also from the highway, which was and is a busy one. A pleasure ground of shrubs was desired by the owner, but he did not know what sorts were the most suitable. Instead of having shrubs entirely I advised him to plant also several fruit trees. He adopted the suggestion, and eventually more fruit trees—pyramids of Pears, Apples, and Plums, but chiefly Apples—were planted than shrubs. The result has proved highly satisfactory. The garden is admired by passers-by, not in the spring only when the trees are blossoming, but equally so in the autumn when the fruit is ripening. It is not the evergreens, handsome though some of them undoubtedly are, which the public admire so much as the fruit trees, and their owner admires them too, for it is a poor year if he does not

sell £20 worth of fruit out of his miniature pleasure ground beyond what he requires for home use. It is certain that the surplus fruit more than defrays the cost of keeping the garden in order; and although it is only divided by a low fence from a populous highway, and the entrance-gate is never locked, yet not 5s. worth of fruit has been stolen or damage sustained since the trees were planted.

There are hundreds of villa gardens which might be rendered additionally attractive by interspersing a few fruit trees amongst the shrubs, and the produce of the trees could not fail being acceptable. Mr. Cole's suggestion is worthy of consideration by owners of gardens large or small, for fruit-tree blossom is always beautiful in its season, and wholesome fruit is ever welcome.—A SQUIRE'S GARDENER.

ROSE SHOWING.

It was with much amusement and not a little surprise that I read the short letter signed "A LOVER OF ROSE SHOWS" on page 47. "Set a sprat to catch a whale" was the remark I made upon reading his question. "If I procure three plants each of the first fifteen sorts in the election lists shall I be safe for showing twelve single trusses at two or three of the metropolitan shows next summer?" Indubitably No is my reply, and I think that anyone who has any knowledge of Rose-showing will endorse this opinion.

In the first place, the class for twelve varieties is one of, if not the most difficult of all, and for this reason—so many amateurs are able to show twelve who cannot show in any other class; and to show twelve well you ought to have the pick of hundreds if not thousands of plants. Again, fifteen varieties is so small a number of sorts, that when you bear in mind the different times at which certain of the best varieties bloom, the odds are that not more than six or nine would be in bloom at any given time. Further, a good Rose plant treated successfully and properly disbudded should not bear more than four blooms. Mine rarely are allowed to give more than two; the whole strength of the plant should be centred in these two buds, therefore it is a foregone conclusion that three plants could not be expected to give a show bloom on three distinct occasions. Everything also would depend upon the dates of the great metropolitan shows corresponding with the early or late soil that your correspondent possesses, also whether he lives in a southern or northern part of this tight little island; so that I should recommend him to give up all idea of showing twelve unless he can buy a few more.

Your correspondent also seems to have entirely misunderstood my remarks. The advice given on two occasions was not contradictory, as he supposes, but altogether the reverse. In the one case I say an intending exhibitor will require twenty plants of each sort, in the other I say a man who wishes to show twenty-four trebles, a most difficult number to show, requires at least fifty good plants of thirty sorts. Your ingenious correspondent, probably to show his knowledge of arithmetic, has divided the fifty by twenty-four instead of multiplying. Surely the meaning is obvious and as plain as the Queen's English will allow. Fifty plants of thirty sorts; it surely would be redundancy to say fifty plants of thirty sorts each, or thirty sorts and fifty of each sort. Such is, of course, my meaning. I would advise your correspondent to buy twenty plants of twenty-four varieties, all good growing sorts, and set to work without delay; then, perhaps, he may hope to compete with Mr. Baker, who certainly has three hundred of each sort, or Mr. Jowitt, who probably has five hundred of each.

But not content with trying to prove that I contradict myself in two letters which appeared in "our Journal," your correspondent accuses me and Mr. Peach, and all others who wire Roses, of cheating. Terrible charge! Cheating to wire a Rose! Well, we live in an age of progress, and perhaps Rose-growing and Rose-showing will in due time be so altered that we shall go back to the old plan of exhibiting our blooms in medicine bottles with a label on some—"Very weak in the back, requires support."

But is your correspondent such a tyro in Rose-showing that he does not know that Tea Roses and some slender-stemmed Hybrid Perpetuals will not do as he does—stand up and present a bold front before an astonished public? They have not the strength of character he has. They are modest and must be assisted before they will turn their lovely faces to the judges; in fact they must have wires in their stays, or like some fair damsels they collapse. Apart also from this, there

is no rule in Rose-showing that affects wiring, and what is open to me and others is open to your correspondent. Perhaps he will on reflection see the modesty that he practises with regard to the limits of his Rose orders is not quite in consonance with the modesty (?) that he as a beginner evinces in accusing me, and every Rose-grower who exhibits, of cheating. There is no art in wiring, or, as my friend Mr. Peach puts it, securing heads of Tea Roses to bits of stick. So instead of inveighing against an established custom, your correspondent had surely better employ his leisure time in practising wiring.

I cordially concur with the advice given by Mr. Hubert Bensted, and I do not think that to an understanding mind there is much difference between his advice and my own. It stands to reason that you ought to possess a great many more plants of a weak grower than of a strong vigorous sort. I remember Mr. Jowitt showing a marvellous bloom of Marquise de Mortemart at Torquay last summer. "I had to cut the whole of the plant away to get that bloom, and have had to place a mark to show where it is," was his remark to me. It is evident, then, that of such a Rose as this you should either possess a hundred plants or none at all. I freely own I cannot grow the sort, and so have given it up; and I strongly recommend your correspondent not to think of growing such varieties unless he can largely extend his Rose-growing.

The season so far has been so mild that here in Dorset my old plants have not shed all their leaves. A Magnolia flower was brought in yesterday, and the Gloire de Dijon has never been out of flower all the winter. We shall suffer for this hereafter, and I shudder to think of the mischief the frosts of next May will cause.—WYLD SAVAGE.

I FEAR that "A LOVER OF ROSE SHOWS" will have to dip more deeply into his "but slender purse" than he at present anticipates if he is desirous of winning his spurs at any good metropolitan Rose show. It is evident that he has quite misunderstood "WYLD SAVAGE's" remark that "a man who wishes to show twenty-four trebles well ought to have about fifty good plants of thirty sorts," since he explains, for the benefit of your readers, that this means about one plant and a half of each variety. Although I have no wish to dispute the accuracy of his mathematical logic, he must allow me to point out that his deductions are entirely wrong. It is quite evident that "WYLD SAVAGE" means that an exhibitor of twenty-four trebles should have fifty plants of each of thirty sorts; and I fear your correspondent will be much disappointed with his purchases if he has cherished the fond hope that he will be able to cut upon any casual day during the Rose-showing time an average of rather more than three show blooms to each two plants. Further, the information he seeks to obtain through the "Rose Journal" as to whether he will be safe by procuring three plants of each of the first fifteen sorts in the Rose-election list for showing twelve singles at the metropolitan shows will be anything but encouraging to such small but ambitious growers as himself. From the number he mentions he would not have the slightest chance of a prize in even a six-variety class at a good metropolitan show such as the National, Crystal Palace, Aquarium, &c.; in fact, to show a really good "twelve" such as the twelve which took the first prize at St. James's Hall last year, an exhibitor should have grown twelve to fifteen hundred established plants, and these not purchased but budded upon Briars of his own from the plants he buys at a nursery as a commencement of his collection.

As regards your correspondent's remarks about wiring Roses, he has certainly much to learn on the subject of showing if he thinks that a box of blooms well "set up" so as to keep a uniform height and display their charms fully to our admiring gaze ought to be disqualified in favour of one with all the weaker sorts (many of the Teas for instance) hiding the delicate beauty of their centres from all save the unappreciative moss below them.—A. G. S., *Irnham*.

THE PRESENT SEASON.

I LIVE within four miles of the Liverpool Exchange and on high ground, and yet on the 10th of December I had fully expanded blooms of Rhododendron Nobleum in the open without any shelter whatever; shrubs exposed to the N.W., N., N.E., and E. winds. I lifted some and placed them in the conservatory, where they are now one mass of blossom. Those left in the borders opened their buds beautifully, and were looking brilliant until the 9th inst., when we had a sharp frost

after a very heavy dew, covering everything with rime, and this completely destroyed the expanded blooms. I think December 10th is particularly early for the *Nobleanum* to be in bloom, but yet, notwithstanding the mild weather, no other shrubs appear to be forward, neither do the Apple bloom buds show any sign of being before time.—J. W.

JUDGING ROSES.

IN judging Roses I think we must dismiss from our minds the elaborate proposals which have been made as to taking the number of points in each flower—form, colour, freshness, &c.; it is simply impossible. Imagine how this would be in judging thirty or forty stands of twenty-fours, or half a dozen stands of seventy-twos, each flower to be put down on a piece of paper and its merits put opposite to it. Why, the lengthening shadows of evening would have fallen upon the earth before the judges' work could be done. Again, it is impossible for any judge, however well qualified, to give entire satisfaction, although I am bound to say it is not generally the exhibitors who question the decisions the most loudly. I do not in the least desire to underrate the difficulties of judging, and the difficulty is sometimes increased when there are three judges, from the fact that they have different ideas as to the perfection of a stand of flowers. It is for this reason that I for one should like to see some broad general rules laid down by the National Rose Society. Take, for instance, the number of Tea Roses in a stand. Some judges immediately seize on this point and say, "Ah! there are six Tea Roses in that stand; that is a great point in its favour." Now, I for one cannot see this. I admit the great beauty of Tea Roses. Some of them, and only some, set off a stand; but I do not think they ought to have anything in their favour because they are Teas. It is as easy to grow a Tea Rose in Devonshire or Cornwall as it is to grow a Hybrid Perpetual, and in judging a stand you cannot of course tell the place from whence it comes or the difficulties the exhibitor may have laboured under. Then there is another point about which judges differ, the symmetry of a stand—*i.e.*, the general evenness of the flowers. It is for this cause, quite as much as for their innate coarseness, that I dislike such Roses as Paul Neyron or Antoine Mouton. They at once disarrange by their great size the even beauty of the stand. It seems very much like putting three horses of 15½ hands into a drag, and the fourth about 16½ hands. You at once say that is not a nice turn-out. Someone has spoken of the freshness of the blooms as a point in their favour; doubtless, but then at what disadvantage are those growers who have to bring their flowers on perhaps a hot July night two hundred miles, and to shift them about from rail to cab, &c., to those who can drive in their own vehicles some fifteen or twenty miles in the cool of the early morning. Some years ago I was bold enough to propose that moss should be done away with, and I see "C. P. P." agrees with me. Certainly some exhibitors by the facilities they possess of access to good moss have a great advantage; but it would make a material difference in the carriage of cut blooms, for there is no doubt that the great amount of moisture the moss contains very materially helps to keep them fresh on a long journey.

In some points I disagree with my good friend. I do not think that because a stand contains some good blooms of a miffy grower that therefore it ought to have some points in its favour. There are some localities where certain kinds seem to thrive better than others, but if an exhibitor lives there it is not much in his favour that he can grow them; moreover, it does not help the general public. One sees a good bloom of *Madame Furtado* and thinks that he should like to add it to his collection; he does so, only to experience vanity and vexation of spirit. To me it seems the Roses should be judged according to what they are on the morning of exhibition, their vigour or otherwise having no place in the judge's mind. A fine bloom of *Jules Margottin* is quite as deserving of consideration as a good bloom of *Madame Furtado*.

I must break a lance with "C. P. P." in defence of my dear old friend Mr. Radclyffe. He is not an exhibitor but a thorough good rosarian, pursuing his love under great difficulties, and when he gives his lists of Roses I do not think he has the exhibitor so much in view as the general lover of Roses. He would not have all but exhibition Roses excluded from his garden, and if he has recommended Roses which others condemn, I can only repeat what I have already stated in this Journal—that in his garden I have seen glorious blooms of kinds which many of us have cast out. For the general

grower (not exhibitor) he insists on vigour as absolutely necessary to qualify a Rose for admission into a garden, and in this respect he is a safe guide. May he long be spared to encourage the growth of his favourite—nay, his only flower.—D., Deal.

PROTECTION FOR FRUIT TREES.

ONE of the greatest points in a gardener's favour is his ability to adapt himself to circumstances. He who can and readily does so ought, and pretty generally does, command success in matters where others perhaps have failed. However, in some cases, and especially with regard to protecting wall trees when in bloom (unless employers are fully alive to the importance of the work and are willing to provide proper materials for so doing), the gardener, if obliged to use such materials as the place only affords, feels that success is very uncertain indeed. Too often, I am afraid, gardeners are blamed for a short crop of Peaches, &c., by unthinking employers, who perhaps some time or other have refused to buy the proper appliances for protecting. If the gardener does nothing he will, perhaps, have to listen to the following indigestible remark—"How could you expect a crop of fruit when you know nothing was done to protect the bloom?" Consequently something must be done if known to be a miserable makeshift. In many places poles are to be had (those that unfortunately cannot obtain them are still worse off), and are laid in a slanting direction from the ground and firmly fixed to the top of the wall; to these are attached various kinds of protecting material. I have seen the following used—the undergrowth of the Spruce and other Firs, fruit nets doubled and trebled, Archangel mats, home-made hay mats or nets, straw mats (the two last made by the labourers during bad weather), strips of old carpet, canvas, &c. No doubt in some instances they are more or less effective, but it not unfrequently happens that parts of the protected trees and others unavoidably left to take their chance carry as much fruit—at all events as much as is wanted—as those over which so much labour has been expended. Ordinary spring frosts may be broken by very slight protection, but if heavy winds are prevalent those very appliances often prove very destructive in themselves. I have seen fruit nets covered with ice dashing against the trees, doing much damage to the blossom, expanded or not. Heavier materials, unless very securely fastened, are still worse, and also tend to forward and weaken the blossom. What is really wanted is something light, yet of a nature to check the radiation of heat, and is also a non-conductor of cold; these essentials are to be found in the frigi domo.

This material is made principally of hair and wool, a good amount of the latter being used. Both possess the above-mentioned essentials, wool remarkably so. This is exemplified in the use of large quantities of woollen fabrics for winter clothing, &c., simply because being non-conductive they prevent a too rapid loss of the heat of the body by radiation. This peculiarity of wool has also been demonstrated by experiment.

The frigi domo, if properly hung, not only excludes what I believe to be most destructive to the delicate blooms of fruit trees—*viz.*, cold winds accompanied by sleet, snow, &c., but also wards off several degrees of frost, and is in effect next in point of utility to a glass-covered wall. Many methods of hanging the frigi domo are in use, but the following is the best I have seen. For example, I will take a Peach wall 13 feet in height and 50 feet in length. It is occupied by four trees, allowing 12 feet 6 inches in width to each. Four boards, each 12 feet 6 inches long and 9 inches wide, loosely fastened with strong staples at the ends, are attached to iron supports driven under the wall coping. Thirteen poles are used; one at each extreme end, one to each junction of the inner ends, and the others placed at equal distances in the intervening spaces. These are let into the ground for firmness about 18 inches from the wall, and nailed to the boards behind the rods. The frigi domo—in 12-feet-6-inch lengths, previously bound, brass rings 1 foot apart are attached to the inner side at the top; and tape strings for tying down at the bottom and inner ends to the poles, and the extreme ends to nails or staples in the wall—is then run on to the rods, which, if fastened as before advised, will slide for that purpose. Other widths of the frigi domo and other materials can be used in the same way, modifying the plan to suit the wall.

The advantages, not forgetting the respectable appearance of the above method, are obvious, one of which is the ease

with which they can be drawn out and the small amount of space occupied when drawn back and tied to the poles. I have found it especially useful during the prevalence of bitter, drying, easterly winds, than which I think nothing is more destructive to the fruit crop. Such winds check the growth, and consequently subject the trees to attacks of various enemies. During such weather, and again if very bright and mild weather is bringing the bloom on too early, the blinds should be kept drawn out, and in the latter case run back at night neatly folded and tied to the poles. The blinds can also be employed for hardening bedding plants, retarding the ripening of a crop, protecting when ripe from insects, &c. They do not absolutely insure a heavy crop, but failures are rare with the exception of the Apricot. In Leicester and Derby shires the Apricot seems quite at home, and is as frequently to be seen on the cottagers' dwellings as Plums and Grapes are in the south. Few make any attempt at protection, but usually obtain as good a crop as those receiving every attention in the gardens of their richer neighbours.—W. IGGULDEN, *Orsett Hall*.

NOTES AND GLEANINGS.

We understand that a meeting of the Executive Committee of the NATIONAL ROSE SOCIETY will be held at the Horticultural Club on Tuesday next the 29th inst., and that one of its chief duties will be the drawing-up of the schedules for the metropolitan and provincial shows; and we are authorised to say that if any member of the Society has again suggestions to make they will be carefully considered by the Committee. Any communications on the subject may be addressed either to the Rev. H. H. Dombrain, Westwell Vicarage, Ashford, Kent, or to Edward Mawley, Esq., Lucknow House, Addiscombe, Croydon.

THE annual General Meeting of the ROYAL HORTICULTURAL SOCIETY is announced to be held on February 12th, when the usual ballot for seats at the Council-board will take place. The Council recommend the removal of Mr. F. Campion, Mr. W. B. Kellock, F.L.S., and Mr. T. M. Shuttleworth, and the election in their place of Mr. C. J. Freake, Cromwell House, S.W.; Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking; and Mr. J. T. Dillwyn Llewellyn, F.R.S., Penllengare, Swansea.

A CORRESPONDENT suggests that if the NATIONAL ROSE SOCIETY is to offer prizes for amateurs living within the postal district of London it would embrace growers around the Crystal Palace, where the Show is to be held, and bring out a great competition, which could not otherwise be if all the classes were made open to all England.

THE fourth INTERNATIONAL POTATO EXHIBITION will be held at the Crystal Palace, in connection with the great autumn exhibition of fruit and flowers, on September 24th and 25th.

THE following are amongst the arrangements of the ROYAL BOTANIC SOCIETY for the present year:—Spring exhibitions, March 27th and April 24th; summer exhibitions, May 22nd, June 12th, and July 10th; evening fête, June 26th. A special exhibition of Rhododendrons, &c., by Anthony Waterer will commence on June 1st, and Messrs. James Carter & Co. will provide an exhibition of annuals during June and July.

THE most attractive of the flowering plants in Mr. Seely's beautiful conservatory at Furzedown Park are several examples of SPIRÆA THUNBERGII. This low-growing Japanese shrub is found to force with the greatest certainty, the flowers having expanded in a fortnight after the plants were placed in heat. The shrubs are profusely covered with small white flowers, which produce a most chaste effect. The sprays are valuable for cutting for indoor decoration, and are admirably adapted for forming wreaths. In all probability this shrub will prove as valuable as *Deutzia gracilis* for early forcing. It is equally as floriferous as the *Deutzia* but much earlier, which is an important advantage. It is deciduous, and requires the same treatment as the *Deutzia*. The leaves of *Spiræa Thunbergii* are very small, linear-lanceolate, and the flowers are produced in fascicles. So valuable is this plant for forcing that Mr. Laing has prepared a considerable number of it; and those who desire a supply of chaste white flowers in the depth of winter cannot err by following his example.

AS easily cultivated and effective decorative plants during the winter months TYDEAS we think demand more general attention. We refer to them now for the purpose of

noticing a variety named Madame Heine, which we have lately seen flowering in the collections of Messrs. Veitch and Bull at Chelsea. The plant is of dwarf habit, and the flowers are attractive by their rich yet chaste markings. This, like many other varieties, flowers naturally during the winter months, and affords a pleasing change from the usual flowers of the period.

THERE was a very large attendance of the members of the HORTICULTURAL CLUB and their friends on the evening of the 15th inst., when about fifty sat down to dinner to celebrate the occasion of the Club taking up their new quarters in Arundel Street. We trust this will be the beginning of a long course of prosperity to this excellent Institution.

So popular have small INDIARUBBER PLANTS become for room and corridor decoration in London that the demand for them can scarcely be met. They are propagated by thousands, and are sold readily in 48-sized pots. A dwarfier form of the Indiarubber Plant, *Ficus rubiginoides*, is worthy of notice for occupying positions where the more stately *F. elastica* is unsuitable. It is of dwarf branching habit, and is perfectly distinct from its upright-growing congener, which is now so extensively cultivated.

As cut flowers for bouquets and at almost all periods of the year few are more esteemed than those of JASMINUM GRANDIFLORUM. The finest plant that we have yet seen of this valuable Jasmine is in Mr. Wills's nursery at Anerley, and the way it is grown by Mr. Bause is at once simple and satisfactory. It is planted out in a cool stove, and is trained to wires stretched 6 or 8 inches from the glass. The entire roof of a large house is thus covered with the Jasmine, and it is rare indeed that sprays of pure white sweet-scented flowers cannot be cut. The growths are rather thinly trained and do not afford a dense shade, but rather a slight and agreeable one to the plants beneath. Wherever choice bouquet flowers are in request and roof space is afforded it cannot be better occupied than with this free and fine Jasmine. *Stephanotis* is grown in the same way at Anerley, one plant covering many hundreds of square feet of roof, and yields thousands of trusses of flowers. The plant is not more remarkable for its great size than for its excellent health and cleanliness. Mr. Bause's antidote for mealy bug is pure water.

AT the Auckland Institute, New Zealand, on the 22nd of October last, Mr. S. Percy Smith read a note on "THE BRANCHED NIKAW PALM TREE," which in its manner of growth, he said, presented features of abnormal character. It was discovered by one of the survey parties growing in the forests at the base of the Tangihua Mountains, Wanganui. Unlike the ordinary Nikaw Palm, the one under review was stated to possess eleven separate and distinct branches growing from one parent stem, and most of which branches separate from the main trunk at about 5 feet from the ground, and after rising some 10 feet higher some of them dividing again into other branches. The tree itself was about 9 inches in diameter at the ground and about 6 inches just before it divides, the branches being from 3 to 4 inches in diameter. The total height was about 30 feet. The tree was said to present a most beautiful appearance in the forest in which it is situated.

THE *Nelson Daily Times* of New Zealand states that "A GIGANTIC BLACK BIRCH tree was felled the other day by a surveyor's party at Staley Creek, near Ahaura. It is stated to have measured 57 feet in circumference at the butt."

It is surprising what a great improvement may be effected in LAWNS by affording them a top-dressing of rich soil at this period of the year. Where the soil of a garden is naturally fertile lawns continue in good condition for many years without any assistance beyond that afforded by the mowing machine, garden roller, and worms (for worms if at times obnoxious are certainly beneficial to lawns); but where turf has been laid or grass seed sown on poor or shallow soil manurial assistance is as necessary to sustain the grass in good condition as it is to any other crop on similar soil. Mr. Baring's garden at Coombe Cottage affords a striking instance of lawn-renovation. The lawn there has long been unsatisfactory, the grass being of that brown wiry character suggestive of sterile soil. Mr. Baker is, however, steadily effecting a real improvement. Each year a certain portion is heavily top-dressed with a compost of which cow dung forms the chief constituent. The effect is most satisfactory, for wherever the dressing has been given white Clover has appeared as "thick as Cress," although no seed was sown; and the surface of the lawn has been changed

from a poverty-stricken brown hue to a healthy refreshing green.

— By far the finest variety of the species of Fern to which it belongs is *PTERIS SERRULATA CRISTATA MAJOR*. Crested varieties of this Fern are common enough, but they are more or less stunted in growth—*cristata* minors. The variety above referred to merits its name, for it is far more robust than the species from which it originated. Some grand plants of this fine Fern are in the stove at Chiswick, where it is said to have originated. They are about 3 feet high and through, and are additionally attractive by the distinct tints of green, the smooth portions of the fronds being very dark, the crested tasselled terminal portions very light. This Fern combines stateliness with elegance in a remarkable degree, and cannot fail being valuable both for purposes of exhibition and home decoration. Like *Adiantum farleyense* it will maintain its value for a considerable time, and for the same reason—that it must be increased by division, all attempts at reproducing it from spores having been hitherto futile. The spores germinate freely enough, but they produce anything rather than *cristata* majors.

— We have received the *Bulletin de la Fédération des Sociétés d'Horticulture de Belgique* for 1876. It contains full reports of all the meetings and the exhibitions of the Federation, and a condensed report of the transactions of all the horticultural societies in Belgium which constitute the Federation.

— COL. TREVOR CLARKE'S new *BEGONIA MOONLIGHT* has more than once been alluded to approvingly in these columns, and not one word too much has been published in its favour. It is not only quite distinct from all other Begonias, but it is undoubtedly one of the most valuable of all for winter decoration. We admired it this week in a cool house at Chiswick, where it is flowering profusely in the company of *Primulas* and *Geraniums*. The peculiar whitish flowers, which are in great profusion, rise clear above the fine dark foliage of the plant, and the effect produced is excellent. The hardy nature, free-flowering character, and fine contrasting effect of the flowers and foliage of this *Begonia* will ensure its wide distribution and extensive cultivation.

— We have not the pleasure of announcing the production of a *SCARLET CHINESE PRIMROSE* (*Primula sinensis coccinea*), but we have strong hopes that the time is not far distant when that important acquisition will be recorded amongst our winter-flowering plants. The nearest approach to a scarlet *Primula* that we have yet seen is now flowering in the Royal Horticultural Society's Gardens at Chiswick. Plants raised from seed supplied by the celebrated firm of Vilmorin and Co., Paris, are producing flowers of unusual richness of colour, and amongst them is one very nearly scarlet. The flowers are small and have smooth loose petals, resembling in form the *Primulas* of a quarter of a century ago; but the colour is decidedly new, and is a clear advance on any so-called scarlet *Primulas* that have hitherto come under our notice. Although the flowers are small and lack the round overlapping fringed petals of the modern strain of *Primulas* now so deservedly popular, they are freely produced and carried above the foliage, which render the plants highly attractive. As soon, however, as the true scarlet colour is attained it will not be difficult to obtain larger and finer flowers. We welcome the new colour gladly, and can trust Messrs. Vilmorin & Co. and Mr. Barron to make the best of their opportunity of raising a true scarlet *Primula*.

LILY OF THE VALLEY.

MR. W. TAYLOR has stated on page 46 that he has "never seen home-grown crowns of Lily of the Valley flower before Christmas so well as imported crowns do." Now, from experience I have found them to do equally well, having grown some of each, and could not perceive any difference in either earliness or quality. The way the home-grown crowns are prepared is to select the smallest crowns and plant them 4 inches apart in a well-exposed position, which is an important point for the crowns to be well ripened. It takes three years to bring them into the condition for blooming well; some are ready for blooming sooner, but if crowns are planted every year it is not requisite to force them, as they do not like being disturbed. They like a firm soil. When grown thus I have found them quite equal to imported crowns. When the crowns are ready for potting sixteen are placed at

equal distances apart in 48-pots, and potted very firmly with the crowns above the soil, and plunged in cocoa-nut fibre till wanted for forcing. Crowns placed at equal distances apart are far preferable to clumps, as you have the blooms equally over the pot. I do not think further details as regards after-treatment is necessary, as an article was written at page 397, November 4th, 1875.—A. Y.

ZINC LABELS FOR ROSES.

IN opening this discussion my object was to obtain the experience of Rose-growers, and if possible obtain for our Rose trees a label worthy of the flower. I maintain that zinc labels are unworthy, and when fastened with copper wire unsuitable for dwarf Roses.

I feel certain that the cause of shoots dying is not abrasion, or caused in the manner described by "AMATEUR" on page 29; but as I have only used these labels when attached with copper wire, I am unable to state what would have been the result if other wire had been employed. I am inclined to think that to fasten labels of any kind upon shoots is a mistake, but should like to have the opinion of some of our large growers.

The label which if fastened loose causes abrasion, and if fastened tight arrests the flow of sap, does not commend itself to—J. BROWN.

NOTES FROM CORNISH GARDENS.

PENCARROW, THE SEAT OF LADY MOLESWORTH.

FROM the days of L. Quintus Cincinnatus to the present time great and good men, whose lives and actions have left their mark upon the world's history for all time, have shown a fondness for rural pursuits, and especially for gardening, retiring from the cares of state, from the command of armies, from the control of vast mercantile undertakings, to some quiet secluded spot, either to recruit their energies or to end their days; entering upon gardening matters first of all, perchance, with a sense of pleasant relaxation and quiet enjoyment, which soon grows and acquires intensity from that desire to excel, that impatience of mediocrity, that is inseparable from such great minds.

The gardens at Pencarrow afford a striking example of this, for although they have probably been in existence for some hundreds of years, yet under the hands of the late Sir William Molesworth, once Colonial Secretary, they were so much improved and beautified, and have subsequently been so well tended and skilfully managed, that they now stand in the foremost rank of our best gardens. But the master mind that planned with a prescience of development that betokens sound judgment in combination with good taste has passed away, and the thought gave an involuntary tinge of melancholy to the pleasure which I experienced in the inspection of a work that is quite worthy of the designation of great, in company with one who had been an intimate friend of its designer, had discussed much of it with him while it was in progress, and who now told me of Sir William's knowledge and love of trees and art as we strolled among scenes that afforded conclusive proof of it.

Bodmin lies in a hollow among the hills in the centre of Cornwall, and Pencarrow is three miles and a half northwards from that quiet old town. The drive thence to Pencarrow was a pleasant one, over hill and dale, long steep hillsides sweeping downwards to the banks of a salmon river, and stretching far away for miles clothed with a dense growth of Oak coppice that in the distance sorely puzzled me, looking as it did like turf, so densely packed were the tree tops. Other hills and valleys open out in quick and pleasing succession till we reach the woods of Pencarrow. From the principal entrance the drive passes through a Roman camp in an excellent state of preservation, its circular outlines clearly defined by the high banks lying very much as they were thrown up by that old-world sturdy race of warriors. Numerous stunted old Oaks growing upon the banks have a happy effect, being thoroughly in keeping with the scene, which would delight the heart of such a character as Scott has given us in his "Antiquary." Beyond the camp the park opens out, and the drive leads down to the house in almost a straight line for considerable part of the way. It is a long drive, and has broad margins of turf fenced off from the park. The margins are embellished with a collection of Conifers forming a pinetum so extensive, so rich in rare species, and so flourishing withal, that one could very well have spent a day among them with equal profit

and pleasure, but my visit was so short and hurried that a passing glance was about all I could indulge in. Among the most conspicuous trees was an *Abies Douglasii* about 70 feet high, and fine examples of *A. Menziesii* and *A. Morinda* both 60 feet high. *Morinda* is also known as *A. Smithiana* and *A. Khutrow*, the weeping Fir of the Himalayas, where it abounds, growing to a height of 120 feet straight as an arrow, and is sometimes upwards of 20 feet in circumference at the base, as is distinctly stated in one of the latest and ablest works on Himalayan vegetation. I met with good specimens of this fine Conifer several times in Cornwall, but it is by no means so common elsewhere, and yet it is quite hardy, answering perfectly well in Scotland; and there can be no question that its dense pensile growth and general effect is so striking and ornamental as to render it worthy of a place in every garden. *Picea amabilis* was well represented by a noble specimen some 40 feet in height. *Picea cephalonica* was full 60 feet high, and when flourishing as it was here is infinitely

superior to *P. Pinsapo*, to which it bears some resemblance. A magnificent example of *Picea nobilis* was 50 feet high, and there was some good *P. Nordmanniana*. *P. grandis* was also very handsome. Then among others was an *Araucaria imbricata* of about 60 feet with numerous cones, a *Fitzroya patagonica* full 18 feet high, and an equally fine *Saxe-Gothæa conspicua*. *Pinus insignis* was very healthy and flourishing, but it was not so fine as the Lamorran trees, and yet it was of no mean size, being quite 60 feet high; and there was a *P. ponderosa* about half that height. *Cupressus macrocarpa* was some 50 feet high, and many others were similarly fine.

Arriving at the garden we went first through the glass houses, and found plants of all kinds in superlative condition, a huge stove full of plants, every one a specimen—clean, glistening with health, and with a development of colour, form, and size such as one very seldom meets with. Fine-foliage plants were especially good. Such a lot of *Marantas*! which shall I choose? This *Veitchii* is surely the best. Ah! but

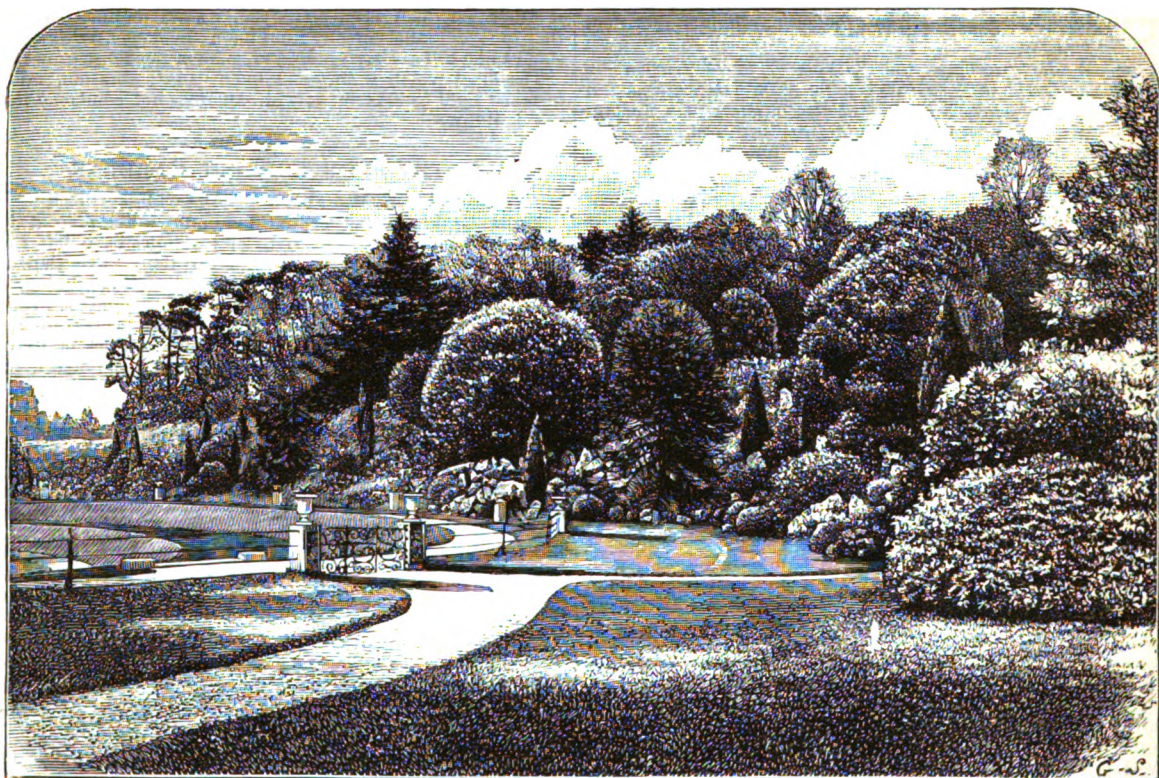


Fig. 13.—PENCARROW—THE ROCKERY.

look at this magnificent *fasciata*; its diameter exceeds 3 feet. And so we went from one to another in a state of bewilderment and delight, enjoying the rare sight fully, yet unable to dwell long over any plant. An alcove at one end of the stove had a novel and pretty arrangement of rocks interspersed with *Lycopods* and *Begonias*, and every part of the walls and pillars of the house was concealed by a close growth of *Ficus repens*. The beautiful *Anthurium crystallinum* was in as good condition as the other plants in this house; and in another—a stove aquarium—was a tank filled with *Nymphæas*, *Allamandas Hendersoni*, *Schotti*, and *Chelsoni* trained up the rafters all in full bloom, *Chelsoni* being decidedly superior to the other two. *Crotons* new and old, all well grown and splendidly coloured, were ranged singly upon a broad shelf around the sides, and the effect of this simple arrangement was chaste and especially enjoyable after the sight of so many varied forms and colours as were seen in the large stove. In a greenhouse *Lasiandra macrantha floribunda* was laden with bold clusters of its rich violet flowers. This is a valuable plant, flowering with equal freedom when planted out in a border and trained up a wall as it was, or confined in small pots, and its flowers both in form and colour are very beautiful. There were other plant houses containing *Fuchsias* and *Ferns*, and a range of

somewhat undersized vineries, the Vines being so much restricted in growth, or rather the growth is of necessity confined within such narrow limits that the fruit cannot have a fair chance.

A few steps from the houses brings us to the lawns and shrubberies, and one is impressed at the first glance with the ample expanse of fine turf tastefully broken by an occasional bed of flowers or specimen tree. The lawn near the house rises gently from it, and out in a central position a bold circular mass of *Cannas* with marginal rows of bright colours has a very happy effect. In another large detached bed are hardy *Heaths* in full summer beauty; in another are a brilliant batch of tuberous *Begonias*, such as *Froebeli*, *Chelsoni*, *Veitchii*, *intermedia*, *boliviensis*, and others, all thoroughly established and left here undisturbed the year round, a little cocoa-nut fibre only being thrown upon the surface to exclude frost in winter. This bed was very beautiful, and I strongly commend it as worthy of general notice, and as a bold and decidedly successful step out of the beaten track.

The flower garden proper is a huge sunken panel having an elegant design in scrollwork. It adjoins the house, and is sheltered on the west side by a clump of old *Beech* trees; and on the side is a rockery, a small portion of which is shown in

fig. 13, for it is very extensive, is bold in character, broken and picturesque—a high ridge with projections and detached masses advancing so far in front of it as to form all sorts of nooks and recesses containing Ferns, Heaths, dwarf flowering shrubs such as *Fuchsias*, *Berberis*, *Andromedas*. The rocks are not deposited in regular strata, but are arranged as a series of irregular peaks in imitation of the Dartmoor tors; and although extending so far, are so skilfully combined that the whole has an air of unity and accord. From the rockery walks wind through a grove of rare kinds of Ash trees said to form the finest collection of this genus in England, many of them having strikingly handsome foliage, onwards up a winding valley through which runs a stream having an appropriate growth of *Osmunda*, *Bambusa*, *Pampas Grass*, *New Zealand Flax*, *Gunnera scabra*, *Flags*, *Sedges*, and *Bullrushes* along and spreading outwards from its margins, many of the plants being huge detached specimens, the *Gunneras* being especially fine. *Rhododendrons*, too, are intermingled with them, and are found to increase in numbers as we ascend till the banks at length are clothed entirely with a compact growth of them, which runs upwards beneath the sweeping branches of high trees and onwards around a fine piece of water, where the banks are very high and steep, but covered in every part with *Rhododendrons*. The walks wind picturesquely around the water upwards to the crown and glory of the valley, a *Rhododendron* garden some two acres in extent.

Thus briefly have I sketched an outline of this charming place, and I only regret my inability now to enter more fully upon its details, for I regard it as one of the finest examples of landscape gardening in this country. Deciduous trees play an important part here, for besides the remarkable collection of Ash trees there is an equally fine one of Oaks and another of *Magnolias*. I also saw a Golden Chestnut (*Castanea chrysophylla*) 6 feet high among numerous other rarities.

I must not conclude without congratulating Mr. Jones, the very able manager of this fine place, upon the excellent condition of a garden of which he has reason to feel proud, and to acknowledge the courteous reception he accorded me.—**EDWARD LUCKHURST.**

NEW PLANTS AND FLOWERS.

LILIAM CORDIFOLIUM. *Nat. ord., Liliaceæ. Linn., Hexandria Monogynia.*—"It flowered in the open air in Kew Gardens in July of last year, and is the second that has been flowered in England, the first being with Mr. Noble at Bagshot many years ago. Of our continental correspondents Max Leichtlin, Esq., of Baden-Baden, from whom this plant was received, and E. H. Krelage & Son of Haarlem, have both cultivated it successfully. It is said to be widely dispersed through the Japanese islands, growing in shady mountain woods, but not to be anywhere plentiful, but it has been found also in the Kurile group."—(*Bot. Mag.* t. 6337.)

KOELESTEINIA GRAMINEA.—"A very elegant Guiana Orchid collected by Schomburgk, and described by Lindley in 1836 under *Maxillaria* from specimens procured by Messrs. Loddiges. Since that period the genus *Koelesteinia* has been established upon various species of *Maxillaria* by Reichenbach in 'Bonplandia.' All of them are South American, and natives of the mountain regions of Guiana, Venezuela, and New Grenada. Another *Demerara* species, *K. tricolor*, Lindley, is very closely allied to this, differing in the greenish sepals and petals which have no transverse band. *K. graminea* is a well-known plant in cultivation, and flowered in the Royal Gardens in January of the present year."—(*Ibid.*, t. 6338.)

ANTHURIUM TRIFIDUM. *Nat. ord., Aroidæ. Linn., Tetrandria Monogynia.*—"It is alleged to have been introduced through the 'Challenger' expedition from the Eastern Indian Archipelago; but no *Anthurium* is known from that region, nor a specimen corresponding to our plant in the dried collections made by the naturalist of that expedition. Dr. Masters, figuring it in the *Gardeners' Chronicle* (1876, ii., page 365), having only a leafy specimen to judge from, thought it might prove to be identical with *Philodendron Holtonianum*, Schott, of New Grenada. The nearest ally of which I have seen specimens is a plant which my colleague Mr. N. E. Brown, who has specially occupied himself with the study of living Aroids, identifies with *A. ochranthum*, C. Koch, introduced from Costa Rica. In this species the leaf is by no means so deeply trifid, nor the lateral lobes elongate and falciform as in our plant."—(*Ibid.*, t. 6339.)

OREOPANAX THIBAUTII. *Nat. ord., Araliaceæ. Linn.,*

Pentandria Monogynia.—"O. Thibautii is a native of Pine forests in Chiapas, a province of Mexico, whence I have seen specimens from Linden (No. 1651), and Ghiesbrecht (No. 147). It is very closely allied to, and perhaps only a variety of, O. *Xalapensis*, which has, however, much larger flower heads, with shorter stouter peduncles and rather broader leaflets. A third closely allied Mexican form from Orizaba has heads only a quarter of an inch in diameter on slender peduncles an inch long; and a fourth, collected by Seeman in Boquitte, has fewer flowers in the heads, distinct recurved styles, and much broader leaflets. O. Thibautii was received under this name from Verschaffelt in 1862, and flowered at Kew in 1869, and subsequently in the month of November."—(*Ibid.*, t. 6340.)

BESLERIA IMRAY. *Nat. ord., Gesneraceæ. Linn., Didymamia Angiospermia.*—"B. Imray is a native of the island of Dominica, where it was discovered by our excellent correspondent of nearly half a century's standing, Dr. Imray, and to whom we are indebted for both living and dried specimens, the former of which first flowered at Kew in 1862. As a species it is most nearly allied to the common West Indian *B. lutea*, L., which is also found in Dominica as well as in Jamaica, St. Vincent, and St. Lucia and Martinique, and which has petioled leaves. It is a glabrous erect herb, with smooth obtusely four-angled stems."—(*Ibid.*, t. 6341.)

RAINFALL AT MORPETH.

In your issue of January 3rd I notice in your Meteorological Observations by Mr. G. J. Symons the rainfall of 1877 at Camden Square, London, was 28.17 inches. You may imagine the downpour that we have had in this part of the country, disastrous alike to both field and garden produce, when I state that nearly 45 inches fell. It is a wonder that we had any Potatoes left after the drenching rains which fell during the last seventeen days of July and the month of August; truly, St. Swithin gave us his blessing. The only Potatoes I had free of disease out of twenty sorts were Suttons' Magnum Bonum, an excellent crop.—J. R.

ADVANTAGES OF EARLY PLANTING.

THESE may be briefly summarised as including more time, more work, more heat, more growing force, and in consequence a larger per-centage of success. It is obvious that the early planter has more time for his work than the late planter. Beginning towards the end of October he may continue planting till February; not that such an extension of the planting season into the new year is desirable, but he can afford to go about the work in a more leisurely manner than he who defers his planting till the new year. It is then too often done in haste and without that due regard for thoroughness which ought to distinguish such a solid and lasting operation as that of the planting of a tree for life. "Marry in haste, repent at leisure" is equally applicable to the planting of trees. Spurts are allowable at the oar or on the course, but trees planted in spurts mostly perish in the most leisurely and provoking manner. The early planter has also the selection of time in his power. It is an immense practical advantage not to be obliged to plant in unfavourable weather. The early planter may plant when it suits him or the trees; the late planter, who has much to do, must plant be the weather and soil what they may. Trees should not be planted in mud, nor during sharp frosts nor drying easterly winds. The first swamps or rots the roots, the second paralysed their power, and the last dry up the larger part of their vital juices. By starting early, making every possible preparation beforehand, and promptly seizing every opportunity that offers, the early planter will generally be able to keep abreast of his work and complete his planting in good time and in the surest manner to command success. The command of the old Earl of Haddington on his death bed to his son John, to "be aye sticking in a tree, Jock," has done perhaps as much harm as good, for while it cannot be doubted it led him and many other Scotch lairds to plant extensively, it likewise gave rise to much careless and slovenly planting, which was fruitful of many deaths and preposterously slow progress. Planting should be something more and better than the mere sticking of trees into the earth anyhow and almost at any time. The time is, in fact, a powerful factor in the operation; and the six weeks included in the last half of October and the whole of November is without doubt the most advantageous season for planting.

The idea that the stars in their courses fought for or against

the ancient warrior was as beautiful as it was sublime. That, however, was but the offspring of fancy or the creation of poesy; but it is a sober fact that the sun himself is ranged on the side of the early planter. The earth is still fairly stored with solar heat through October and November. Heat is the most active recuperative power in nature. Instinct and experience alike prompt us to keep our wounds warm. If we cut our finger we wrap it round with rag, not merely to exclude the air but to retain the heat. If anyone doubts that the heat is an element in the healing, let him try the experiment of exposing his next cut to the cold. He will not repeat the cold cure for wounds. The same care holds good with plants. Each newly planted tree has received some, it may be many wounds. It is impossible to transplant trees, however small, without mutilating or bruising few or many of their most delicate roots. The primary object of the planter is to get these wounds healed as quickly as possible. There is no healing power within reach equal to a covering of fine—that is, close-fitting warm earth. Treat the roots to this promptly and they begin to heal at once, and once the start is made the process of healing is soon and surely completed.

Trees are necessarily detached from the soil in the process of replanting. The old connection is severed, and a certain time must elapse before a new one is established. True, the roots are covered with earth, but this covering is merely mechanical, and the roots have no vital hold of the ground; they absorb neither food nor water from it. This interregnum in the close hold of the roots on the soil constitutes the danger of planting. While the roots remain detached the plant suffers in health and strength, in fact is in danger of dying. Hence the practical importance of making the period of detachment or root-isolation as short as possible. Solar heat is the great root-quickener that arouses them to a sense of their new position, and enables them to lay hold of and grow in the fresh soil of their new abode.

But supposing the solar heat to be flooded, frozen, or driven out by the cold rains, frosts, snows, or winds of winter, the injured roots will be deprived of their most powerful healer and only available stimulant to their speedy settlement in their new home. This is no matter of theory, but of actual experience and daily observation. Plant trees at the seasons here specified, the roots heal quickly and take a grip of the soil at once. Defer planting till January and the roots start slowly, often not at all in time to recuperate the trees, exhausted of their fluids by their bursting buds in the early spring.

This brings us to the third point in favour of early planting—more growing force. The roots are more active in the late autumn or early winter than at any other season. Few that have had much experience with trees or shrubs but must have noticed this. Lay trees in by the heels in November, and they will form a mass of new roots in a month or six weeks. Lay the same trees in during January and nothing like the number of roots will be formed. An examination of trees planted at the two seasons respectively reveals similar disparity of root-action at the two seasons. The cause of this may arise from the descending sap, if there is such a thing; or perhaps, more probably, from the residue of solar heat still stored within the fertile bosom of the earth. Probably, also, the winter is the special season for root-extension. During the summer, with the trees covered with leaves, flowers, or fruits, it may very well happen that the roots are chiefly engaged in forwarding supplies. Like parcels delivery companies they may then receive for and deliver to other parts of the plants chiefly or only. The season of falling leaves and naked boughs brings a partial rest or slackness in the collecting and delivery departments. What, therefore, is more probable than that this should be the season chosen by the roots for enlarging themselves and breaking into new ground against the augmented demands of the next season? Be all this as it may, it is certain that during November the roots of deciduous trees are in a state of abnormal activity, and the prudent cultivator will gladly avail himself of this augmented vital force as the most potent means at his disposal for promptly starting his trees in their new positions.

The early planter also gets more work done than the late one. Work here has also a double meaning. It is true the early planter gets more trees planted for less money than he that plants later. This is something, for planting is costly if well done, whether on a large or a small scale. But the trees themselves do better if planted early, and this is of the utmost moment. Trees thrive or stunt, live or die, very much in the ratio of the promptness of their root-making within the first

two months of the time of their planting. Plant in November, the roots will be in full growth before January, and the tree be safely established; plant in January, and the condition of the tree in March—the most trying month of the whole year—may be said to be at the mercy of a chapter of accidents, on which no one can rely with any certainty.

If there is any truth in these remarks, and no planter will deny that there is much, one last proposition follows as a matter of course, that the early planter commands the larger measure of success. This is abundantly proved by experience, the outcome of which may be summarised thus:—Plant early, the trees must thrive; plant late, they may live.—D. T. FISH. —(*Journal of Forestry.*)

NOTES ON VILLA AND SUBURBAN GARDENING.

HARDY CLIMBERS AND SCREEN PLANTS.—We are frequently receiving inquiries from correspondents to know the best climbers and screen plants suitable for covering both high and low walls for sunny and shady positions, and for north, south, east, and west aspects. This is not to be wondered at when we notice the rapid increase of villas in the suburbs of our large towns. Walls are "red and bare" or harsh and rigid to the eye unless the surface is clothed with foliage or flowering plants suitable for this purpose. As the present time is favourable to the planting of such we give a selection and describe them as clearly as possible, and at the same time suggest the positions best suited to promote a rapid growth of the plants, without which they cannot produce a satisfactory effect.

Ivy.—For covering unsightly or boundary walls or for a north aspect there is nothing to surpass the numerous varieties of Ivy, amongst which are such a diversity of colours and sizes and forms of foliage that a good collection will be found highly interesting "all the year round." *Hedera dentata* is the largest-leaved Ivy in cultivation. We recently measured a leaf of this that was 8 inches long and 6½ inches broad. It has a very long leafstalk, and its hard leathery foliage stands out boldly and effectively. *H. Ragnieriana* is another bold and effective kind with magnificent large glossy heart-shaped leaves. It will rapidly cover a large space of wall with its robust growth; but perhaps the most useful for all purposes are *Hedera canariensis* and *c. latifolia maculata*; this last is a handsome marbled-foliaged variety of *canariensis*. They are both of very free growth, quickly covering the wall or trelliswork against which they are planted. *H. azorica*, *sagittifolia*, and *taurica* are also very useful; the last named has much-divided small and neat distinct leaves. There are also several other very pretty variegated sorts, such as *H. aurea*, *argentea*, and *elegantissima* which do not grow quite so fast as the foregoing, but are indispensable if a collection is aimed at, and are very useful for covering buttresses and small prominent positions, the more robust growers being planted to cover the broadest spaces. The green varieties of Ivy delight in rich soil, which induces their rapid growth; but to the golden and other variegated sorts rich soil is detrimental, for if forced into exuberant growth they are apt to sport from their variegation; to obviate this we advise mixing stones, lime rubbish, and the like amongst the soil prepared to plant in. Generally speaking Ivy loves shade and clings tenaciously to most walls, but in the first instance the shoots, especially of the larger varieties, require nailing to their positions. Where Ivy has long been established, the shoots having been allowed to grow across each other until all has become a dense mass, it will be advisable during March or early April to give the whole surface a severe clipping with the garden shears; for a few weeks afterwards it will have a bare and shabby appearance, but this will soon disappear, and the young shoots will give a lovely green surface that will be pleasant to the eye the remainder of the year. The clipping will also decrease the weight of the Ivy and prevent it coming down *en masse*, which it not unfrequently does during rough and wet weather.

Ampelopsis hederacea (Virginian Creeper).—This is one of the most ornamental and rapid-growing plants we have. It flourishes admirably on a north wall; in fact it is a most accommodating plant, thriving everywhere even in the heart of London, running around and over balconies, and draping them and other structures during summer with festoons of its tender young shoots. In the autumn the leaves turn to a brilliant crimson hue, which for a short time is very effective. We have it growing intermixed with Irish Ivy and covering the wall of a residence 40 to 50 feet high. *Ampelopsis Veitchii* (*tricuspidata*) is very suitable for walls, and is as remarkable for its elegance of growth, its refined and graceful appearance, as for the tenacity with which it clings to the object against which it is planted. It will thrive well in a north position, but a warmer aspect brings out better the brilliant colour of its leaves in the autumn. We strongly commend this plant to our readers.

Crataegus Pyracantha.—This and *C. Lelandii* are most desirable plants for cold north aspects, and when in fruit are highly at-

tractive. The leading shoots should be trained upright, and the side branches horizontally. Although the plants named are well suited for cold north shady positions the greater part of them will also be equally suitable for an east wall; but to this position the following may be added, which will give a greater variety. *Clematis flammula* is not only a very profuse bloomer in early spring but is very fragrant and sweet-scented; this and *Jasminum officinale* will ramble to a great height. *Cydonia japonica* is a deciduous shrub and is best suited for low walls and screens, its brilliant flowers opening so early in the year make it very welcome; and fit companions for it are *Berberis Darwinii* and *Cotoneasters microphylla* and *Simmonsii*, all very neat-growing evergreen shrubs. The common *Euonymus* may be planted with advantage near the sea and in very exposed places. The glossy appearance of its foliage and the compactness of growth make it very valuable for low walls. There are several variegated forms of the *Euonymus* which are extremely attractive, but we should prefer planting these on the west sides of a low wall.

For south and west positions the following are all suitable, some flowering in midwinter, others throughout the remainder of the year. The remarkable fragrant deciduous shrubs *Chimonanthus fragrans* and *Jasminum nudiflorum* are in flower now, the former having curious pale yellow flowers and the latter bright yellow, bearing profusely on the bare twigs, the foliage following after blooming. Most of the *Ceanothus* are very beautiful; their dense habit and free-blooming properties render them great favourites, particularly *C. azureus*, *Gloire de Versailles*, *dentatus*, *divaricatus*, and *rigidus*. All these and *Magnolia grandiflora exoniensis* flourish well in the warmest and most sheltered positions; while *Clematises rubella*, *Jackmanii*, and *lanuginosa* will cover the taller and less protected quarters. These *Clematises* flower the better for pruning rather closely in the spring and by the roots receiving a liberal dressing of decayed manure. *Escalonia macrantha* is a very fine species, and in damp places blooms very freely. *E. rubra* is also deserving of a place. *Elaeagnus aurea maculata* is a very beautiful variegated shrub for a low wall, and *Garrya elliptica* is admirably suited either for high or low walls; its charming evergreen foliage is very pleasing during the summer months, and in the winter it is profusely laden with long catkins which are both elegant and conspicuous.

Many *Roses* are also very suitable for training against walls and covering trellises, a selection of which and their after-treatment we must defer until our next.

WORK FOR THE WEEK.

KITCHEN GARDEN.

POTATOES where stored in heaps should at once be spread out in sheds or other positions safe from frost, especially the early varieties, which, if the shoots are so long as to necessitate the removal of the first growths, are apt to become blind, causing serious disappointment. We consider the removal of the first sprouts weakens the sets, and is not without its detrimental effect upon the produce. All, especially the early kinds, should be kept cool (the cooler the better provided they are safe from frost), so as to secure them with the first growths half to three-quarters of an inch long by the time of planting. Early kinds packed in shallow boxes, eye ends uppermost, and placed in a moderately light place with a temperature of 45° to 50°, will make short and sturdy sprouts by planting time, which should be well hardened off before being placed in the soil. Placing them in moist houses not only forwards the sprouting but the formation of roots, which speedily succumb to the dry air at planting time, which, of course, is injurious. Onions, where kept in close rooms or cellars, will be commencing to grow. Remove them to a cool airy shed. If strung and suspended they keep sound in such a position for a very long time.

FRAMES AND PITS.

Continue making beds and planting Potatoes in proportion to the demand. A little Celery may be sown in pans of rich soil placed in a warm pit close to the glass, the seed being very thinly covered with fine soil. Incomparable (*Sandringham Dwarf White*) is one of the best, and is not so liable to run quickly as most kinds. Sow Tomatoes if not already done, repotting those strong enough as they fill the pots with roots. Carrots, Lettuces, and Radishes require air on all favourable occasions to keep them from becoming drawn in a young state. A good supply of Mint should now be taken up and placed in pots or boxes and assigned positions in a vinery or other warm house, also a few roots of Tarragon. Sow the customary small salading once or twice a week.

Cucumbers and Melons.—If there exist no means of raising plants for planting in frames a bed should be made at once of well-sweetened dung so as to receive a one or two-light frame; but where there are forcing houses Cucumber plants for the first bed may be raised without the trouble of a bed purposely made for raising a few plants. Nothing is gained by early sowing and planting of Cucumbers and Melons in pits or frames solely heated by fermenting materials, owing to the difficulty of maintaining a brisk heat at the time the plants should come into bearing. The early part of February is quite early enough to plant Cucum-

bers, the bed having been made up a week to ten days previously of well-sweetened hot dung and tree leaves in about equal parts, which admixture produces a steadier and more lasting heat, that of dung alone being often violent and of but short duration. Beds 6 feet high at the back and 5 feet in the front will be necessary for the first crops. Medium-textured loam with the turf reduced is the best soil for Cucumbers without any admixture, a hill being raised in the centre of each light with a flattened top, the depth of soil 10 inches, and the surface of the bed covered with an inch of soil. If the heat be violent an inverted flower pot inserted half its depth in the dung, a hollow being made to receive it where the hillock is to be raised, will prevent the soil becoming too hot for planting, which should not be done with a higher bottom heat at 6 inches depth than 90°. The soil should only be moderately moist, as a wet soil or over-watering will cause the decay of the stems. Top heat 70° to 75° to be maintained by placing linings of hot dung as required to the sides of the bed and frame. Place one plant in a light and down to the seed leaves within an inch. The *Sion House* class having many representatives, *Munro's Duke of Edinburgh* being one of the best, are good for everyday use, and *Tender-and-True* is excellent for any purpose. Of Melons there are now so many that selection is difficult. *Eastnor Castle*, *Golden Gem*, *Read's Scarlet-flesh*, and *Meredith's Cashmere* are good; but we do not advise Melons to be sown for planting in frames as yet, as the high temperature, in the absence of light and air, induces weakly growth, whereas sturdy growth and thick leathery leaves are wanted for the production of heavy fruit, which is always the thickest in flesh and highest in flavour.

Flower Garden Stock.—Look over the plants frequently, removing any mouldy or decayed parts, and water carefully, especially succulents. An estimate of the quantities of the plants required should be made. Plants which are increased by cuttings should be placed in a higher temperature and moister atmosphere. *Ageratum*, *Verbenas*, *Lobelias*, &c., soon afford a quantity of cuttings. *Alternantheras* if potted in rich soil and given a temperature of 65° to 60° at night, 70° to 75° by day, also *Coleuses* and *Iresines*, will soon afford an abundance of cuttings. Sow seeds in a hotbed of *Canna*, *Ferdinandia*, *Nicotiana*, *Melanthus*, *Eucalyptus*, *Ricinus*, and other subtropical plants where means are provided for growing them on without crowding. They should be strong plants at planting-time and well hardened-off. Sow also seeds of succulents, such as *Echeverias*, *Sempervivums*, and *Sedums*. *Mesembryanthemum cordifolium variegatum* does not always come true from seed; cuttings strike readily in a rather dry heat of 65°. The fleshy leaves of *Echeverias*, *Cotyledons*, *Pachyphitons*, *Kleinias*, &c., may be detached and inserted in sandy soil, and they will soon root in a dry heat.

HARDY FRUIT GARDEN.

Take the first opportunity to complete the planting of any trees or bushes yet remaining to be done, the ground having previously been trenched and, in the case of new plantations, drained. We not unfrequently see orchard trees with their stems and branches up to the small twigs covered with moss and lichen, and the sward beneath them for the most part moss intermingled with thin wiry grass. Draining in most instances would be beneficial, as no tree will long thrive and be profitable with water lodging nearer the surface than 4 feet. Any excess—and all above the soil's power of retention is that—should be removed by thorough drainage. Moss and lichen upon the trees are readily destroyed by dusting them in every part whilst wet with quicklime, a practice which is equally applicable to trees in gardens down to Gooseberry bushes, which not unfrequently become clogged with moss, &c. Newly planted trees should be securely staked and mulched over the roots, deferring pruning until the buds commence swelling. Moss not infrequently arises from sterile soil; a top-dressing in the case of orchards of rich compost and lime, one ton of lime to six of compost, would do much to improve the soil, and ultimately the trees, if spread on the surface of the ground so far as the branches of the trees extend. Orchard trees having the heads very much crowded with weak and dead wood should have the dead cut out and the weak crowded wood thinned, particularly the inner branches and those crossed and entangled. It should, however, be done with moderation, as a too severe thinning will only result in the production of strong shoots or much young wood, a great portion of which will need to be removed.

FLOWER GARDEN.

In addition to the usual mulch given to *Roses* in early winter a little hay, or, what is better, bracken loosely woven in among the heads of standards and placed over and among those of dwarfs, will have a tendency to save them from injury by severe frost, but it should only be employed in that case, and not be removed until a general thaw. The wet and cold of last year has left the wood very sappy and unripe. Tree *Pæonies*, *Tritomas*, and similar plants are not only the better for a mulch of some enriching material over the roots, but a top covering of some dry material in severe weather is advantageous. Protection must be given to beds of *Anemones* and *Ranunculuses* in severe weather. *Pinks*, *Carnations*, *Pyrethrums*, and *Delphiniums* are much relieved by

slugs; a sprinkling of soot over them will render the plants obnoxious to them. In the case of Pyrethrums and Delphiniums remove the soil from the crowns, sprinkle with soot, and cover with ashes; also Hollyhocks and other plants liable to suffer by wet as well as slug attacks. Ground intended for Dahlias, Hollyhocks, and all plants of strong growth should be deeply trenched and liberally manured, leaving the surface as rough as possible to allow of the action of frost. Beds for summer-bedding plants to be trenched and moderately manured, especially for flowering plants, those for foliage plants requiring a rich soil.

FRUIT HOUSES.

Vines.—Anything approaching to a close atmosphere is highly prejudicial to the formation of stout short-jointed shoots and thick leathery leaves, therefore admit air when the weather permits. Close the houses early as there is great difference between sun and artificial heat, allowing the temperature to advance to 80° on fine afternoons, and to fall to 60° during cold nights. Disbudding to be attended to so soon as the bunches show, leaving the best. It is a good practice to disbud gradually. We leave two shoots to a spur, one only being allowed to fruit, the other being retained, which induces an extended root-action and induces a greater supply of nutriment to the bunches. Remove loose and duplicate bunches, stopping the shoots at two joints beyond the bunch, but not until the leaf stopped to is half developed. Thinning may be commenced as soon as the berries are the size of small peas. This, however, will be subsequently alluded to. See that the outside border is not allowed to decline in temperature by lack of timely additions to the fermenting material.

Peaches and Nectarines.—The trees in the early house will after the fruit is all set require syringing morning and afternoon in bright weather; during dull days syringing in the morning will be sufficient, not omitting to damp the floors frequently when the syringing of the trees is omitted. Disbud the young shoots cautiously, a few at a time, so as not to lessen the root-action and cause the incipient fruit to drop. Let the temperature be 60° to 55° at night, and 60° to 65° by day from fire heat, rising to 70° to 75° from sun heat. The houses closed early in the month will now have the trees in flower. Discontinue the sprinkling overhead, but the floors should be damped once or twice a-day according to the weather. The flower buds in the latest houses are swelling fast; keep such cool by free ventilation, avoiding, however, actual frost. If aphid appear fumigate with tobacco.

PLANT HOUSES.

Stove.—Gesneras of the zebrina type having flowered should have a position near the glass, and no more water than to prevent excessive flagging. Any plants coming into flower to have a light position and not allowed to suffer by want of water. Weak liquid manure is beneficial. The bulbous section, such as *G. Donckelaari*, if any were dried-off in autumn may now be started, potting them similar to *Gloxinias*, and placing them in a warm yet light position. *Nagelias* and *Eucodonia*s not to be dried off too quickly, but to have light and airy situations with water to keep the foliage from flagging. Those in flower to be well supplied with water. Some *Achimenes* may now be started in broad pans, and after they have made an inch or two of growth be lifted carefully and transferred to the flowering pots, pans, or baskets. *Caladiums*, if wanted early for decorative purposes, may now be started, and as they are most acceptable in small pots, as 6 or 8-inch, the small corms should be employed preferably to the larger corms, which should have pots proportionate to their size. *C. argyrites* is still one of the best for decorative purposes. *Epiphyllums* which have ceased flowering to have a lessened supply of water and light position in an intermediate or warm greenhouse. *Poinsettias* also to have a season of rest after their beauty is over by placing them on a shelf near the glass, watering very sparingly until the leaves are shed. *Centropogon Lucyanus* to have a rest after flowering, and being cut back a little and placed near the glass, not allowing the roots to become too dry. *Eranthemums* and *Euphorbia jacinthiflora* having been cut out or of flower to have plenty of light and very little water, but the foliage of the former to be kept from flagging, and when the *Euphorbia* is leafless cease watering almost entirely, but see that the wood does not shrivel.

TRADE CATALOGUES RECEIVED.

James Carter & Co., High Holborn, London.—*List of Novelties and Collections of Seeds.*

William Bull, King's Road, Chelsea.—*Catalogue of Select Flower, Vegetable, and Agricultural Seeds.*

Hooper & Co., Covent Garden, London.—*Spring Catalogue of Seeds, Plants, and Garden Requisites.*

Pengilley & Pool (successors to the Heatherside Nursery Company), 50, Queen Victoria Street, London, E.C.—*Illustrated Catalogue of Vegetable, Flower, and Farm Seeds, and General Garden Requisites.*

William Sampson, Kilmarnock.—*Spring Catalogue of Seeds, Plants, Garden Implements, &c.*

William Smith & Son, Aberdeen and Kintore.—*Catalogue of Vegetable and Flower Seeds, Plants, &c.*

S. Dixon & Co., 34, Moorgate Street, London, E.C.—*Select List of Vegetable, Flower, and Agricultural Seeds.*

Vilmorin, Andrieux et Cie., 4, Quai de la Megisserie, Paris.—*General Catalogue of Flower, Fruit, and Vegetable Seeds.*

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

BOOKS (A. A. Fruit).—The "Vine Manual," free by post if you enclose thirty postage stamps with your address. (*Col. R. S. S.*).—*Indoor Gardening* we think will afford the information.

NOISE IN HOT-WATER PIPES (R. C. H.).—It probably arises from air bubbles passing through the water. Affix an air pipe at the highest point of the hot-water pipes to induce a better circulation.

NIGHT SOIL (J. Davies).—It is one of the most fertilising of manures. Quicklime does not reduce its value.

PLANTING POTATOES (Carlos).—If you plant the sets and rows 18 inches apart you will require about 48 cwt. of Potatoes, a single eye to each set, and each set weighing 2 ozs.

MEALY BUG (H. S.).—The proportions of ingredients you mention are correct.

VINES NOT STARTING FREELY (M. D.).—You have possibly been too generous in applying heating material to your Vine borders. You have probably covered them too soon and kept them too warm. It is not in the nature of Vines to make roots actively before top growth has commenced. Fermenting manure and leaves promote the formation of roots near the surface of the borders, and the practice is a good one if properly carried out. We never place the material on the borders before the period when the house is kept close. We think the practice of covering the borders with "hot manure" two months before starting the Vines decidedly wrong. We have observed that Vines thus managed always break weakly. You had better let the heat of the fermenting material decline, and slightly increase the temperature of the house. You have probably weakened your crop for this season, but the Vines will eventually recover their strength as the season advances.

CUCUMBERS UNHEALTHY (A New Subscriber).—We fear your plants are attacked by the disease. We advise you to remove all the soil and replace with fresh, obtaining also fresh seed for the raising of healthy plants. Those you have can never be profitable, although perhaps they may produce a few fruits, until your young plants are advanced for continuing the supply. There were traces of red spider on the leaves, but the insect attacks had not been serious.

SELECT ROSES (R. H. A.).—The following are twelve good hardy climbing Roses for a north wall in Cornwall:—*Gloire de Dijon*, *Céline Forestier*, *Fulgens* or *Malton*, *Climbing Devonians*, *La Biche*, *Rêve d'Or*, *Donna Maria*, *Sir Joseph Paxton*, *Félicité Perpetue*, *Belle de Bordeaux*, *Climbing Jules Margottin*, *Cloth of Gold*. The last, though an uncertain bloomer, will often flower well on a north wall. If the wall is high it would be best to plant one of the above rampant climbers every 8 feet, with a Rose of shorter growth between, allowing the former the upper half of the wall and the shorter growers the lower part. This plan gives variety and clothes the lower stems of the climbers, which are apt to get naked and scrubby. There are many of the strong-growing Hybrid Perpetual Roses suitable for this purpose, as *Paul Neyron*, *Glory of Waltham*, *Général Jacqueminot*, *Boule de Neige*, *Princesse Camille de Rohan*, *La Souveraine*, &c. The dwarf Briar and *Céline* stocks are best for the Tea and Noisette varieties, and the *Manetti* for the Hybrid Perpetuals.

GROWING MUSHROOMS (J. C. G.).—The bulk of the material must consist of horse droppings, with a little half-decayed stable litter intermixed. A third of leaves may be added, and a tenth of loam, the whole being thoroughly mixed and pressed firmly into a bed not less than a foot in thickness. When the heat is declining, not rising, spawn may be inserted when the temperature of the bed is between 75° and 80°. Press lumps of spawn about the size of walnuts into the surface of the bed and about 8 inches apart. In about a week afterwards place on 2 inches of good loam and beat it very firmly. In about six weeks after that, if the bed and temperature are right and the spawn good, you may expect Mushrooms. The leaves you name are only useful for mixing with the horse manure.

FORCING ASPARAGUS (Idem).—There is no better plan than placing the roots closely together in a frame on a hotbed of manure, where the heat is from 80° to 70°, placing them on a layer of soil and covering the crowns 3 or 4 inches deep with light soil. The top heat of the frame should not exceed 60°. It may be forced also in boxes in any light well-heated structure.

WATERING INSIDE VINE BORDER (M. D.).—As your Vine border was never watered during the time the fruit was colouring, it is not surprising that red spider and thrips became so plentiful, and unless careful measures are taken to eradicate them you may depend on having to contend with a much greater force of these pests this season; but this will be much easier done than repairing the injury which the Vines will have sustained through having been "dust dry" at the roots for "some months." This is the worst treatment they could be subjected to. Lose no time in pruning, cleaning, and washing the canes thoroughly with soft soap and water. Remove a few inches of the dry surface soil from the border, and replace it with a rich mixture of loam and decayed manure; then give sufficient water to thoroughly drench the whole border. As it will be some time before the dried half-dead roots can get into proper action, we would advise you to start the Vines into growth very slowly. Water copiously throughout the growing season, as well as when the fruit is colouring, and after that never let the soil become so dry that if a tender-leave plant was planted in it the

leaves would droop for want of water. Your other question will be answered next week.

CLERODENDRON BALFOURI TO FLOWER IN AUGUST (J. E.).—The plants having "just been potted and growing fast" will require to be well supplied with water and to be kept in a brisk moist heat until the growth is complete, and should then have water sufficient only to maintain the foliage from flagging, lessening the supply gradually, affording a light and airy position so as to induce the thorough ripening of the wood. The plants ought to be at rest by the middle of May, and should be kept quite dry until the middle of June, not, however, allowing the wood to shrivel, when the plants may be repotted, merely rectifying the drainage and loosening the sides of the ball and giving a pot 2 inches larger in diameter; or, if potting be not required, remove a portion of the surface soil and replace with fresh. Place the plants in a brisk moist heat and supply them well with water and with weak liquid manure when the shoots are an inch in length, and provided the wood is well ripened your plants will be masses of bloom in five to six weeks. We have half a dozen plants, and are never without flowers of this very useful plant.

BUCHARIS AMAZONICA (Idem).—For invigorating your plants pot them in rather strong or yellow loam, plunge the pots in bottom heat (85° to 90° at the bottom of the pots), and water with liquid manure liberally, but not in very strong doses. Top heat should be 75° to 70° by day, rising to 80° or 85° with sun, 65° to 60° at night.

CAMELLIAS NOT FLOWERING (A Constant Reader).—The non-flowering is a consequence of too free growth, the border being probably rich and loose, and the wood strong and not well ripened. It is not infrequent for plants planted out to grow very vigorously for a few years, which is none the worse for them in after years. We should admit air very freely after the growth is complete, and keep the atmosphere rather dry so as to induce the well-ripening of the wood, and when the buds are set keep the house cool. The plants starting into growth before flowering is due to their vigorous root-action and the high temperature maintained, and probably close atmosphere; 50° to 55° from fire heat is much too high for Camellias. Ours are kept in a temperature of 45° to 50° by day and 45° to 40° at night, and have flowers from November to April inclusive, they being finer this year than usual.

TRANSPLANTING LARGE GOOSEBERRY AND CURRANT BUSHES (J. S.).—The heads of the Currants should be drawn together and secured in bundle-like form with string, being careful not to break the branches, the Gooseberries to some extent being amenable to the same practice, but to a lesser extent owing to the lesser flexibility of the branches. Buses of the age you name will require to have a trench taken out 2 feet from the stem all around and below the roots; from the trench you will need to work toward the stem with a fork, removing the loose soil from the roots until within a foot from the stem, where a spade should be used to lift the bushes, inserting it all around beneath the roots in a slanting direction, so as to cut any perpendicular roots. If you can move with some soil adhering to the roots it will facilitate their establishment in their new quarters. Spread out the roots in planting, working in the soil among them, using moderately rich soil, mulching over the roots on the surface of the soil with short litter, and take the earliest opportunity after the middle of February to thin out the branches and cut back any irregularities of growth to compensate in some measure for the loss of roots consequent upon removal; in other words, pruning should be more severe than if the bushes had not been removed.

CECLOGYNH CRISTATA (Constant Subscriber).—As your plants made "new and fine bulbs last year," their not flowering is due to the growths not having been well ripened. Afford them more light this year after the growth is complete and give a thorough rest. It is similar with the Dendrobium nobile. Have the growths well ripened, and afterwards keep dry and cool. Orchids in plant houses are often not satisfactory from the plants being kept at too great a distance from the glass, in positions shaded by climbers or other plants, and kept too moist when at rest, which causes growth instead of flowering. The temperature is right.

TUBEROUS-ROOTED BEGONIAS (E. S. W.).—We hope shortly to publish some hints upon the cultivation of this very desirable and much-improved class.

CULYERWELL'S PROLIFIC MARROW PEA (W. R.).—Apply to Messrs. James Veitch & Sons, Royal Exotic Nursery, King's Road, Chelsea, London.

HEATING A SMALL GREENHOUSE (W. H. Stafford).—Employ a fire rather than a petroleum stove.

BONE MANURE—COCO-NUT FIBRE REFUSE (W. S.).—Crushed bones may be mixed beneficially with the soil in which Cucumbers are grown. Coco-nut fibre refuse will not supply the place of leaf soil; it does not decay fast enough; it is, however, very valuable for propagating and plunging purposes.

PLANTS FOR A RIBBON BORDER (A New Subscriber).—For your border with three rows you may have an old but beautiful combination of Golden Feather Pyrethrum (yellow), Lobelia speciosa superba (blue), and Amaranthus melancholicus ruber (rich crimson), all readily raised from seed, and all coming into full beauty early and lasting well into autumn. Then there are Cineraria maritima and Cerastium tomentosum, both well-tried plants with pearly-grey foliage; the greyish-blue-flowered Ageratum Tom Thumb and Imperial Dwarf; Acacia lophantha, with elegant foliage; Cannas too making a fair display the first year from seed, as do such sub-tropicals as Ricinus Gibsoni and sanguineus tricolor, Solanum pyracanthum and S. Warsceviczii, also Ferdinandia eminens, Melianthus major, and Wigandia caracasana; but we must caution you not to attempt the culture of such plants in an exposed situation, shelter from wind being indispensable to the protection of the large delicate foliage, which a single storm may ruin for a season. Portulacae, Petunias, Zinnias, Godettias, and Philox Drummondii are all so gay, so variable in colour, form such compact cushion-like masses, are so easily raised, and so admirable withal that they cannot lightly be set aside, and under good culture are calculated to worthily fill beds and border, however prominent the position may be.

DESTROYING SLUGS (E. R.).—Where they are so numerous as in your case we doubt if you can apply anything more safe and effectual than a mixture of lime and root to your young Cauliflowers; but it must be applied frequently and at the right time. It is little use dusting the plants in the daytime when the slugs are safe in their haunts. We think if you apply the mixture frequently and liberally during mild nights when the slugs are feeding that you will save your Cauliflowers. Guano will kill slugs, but it must be used with caution, and is not applicable in your case. Large greased cabbage leaves and heaps of bran and grains will attract numbers

of slugs, which can be caught and destroyed; but the "traps" must be examined very early in the morning. A brood of young ducks would be very valuable in your garden.

PLANTING MARCHEAL NIEL ROSE (A. R. C.).—Plant your *Maréchal Niel* immediately. It answers best with us on the common Briar stock.

HARDY AURICULARS (Idem).—The *Alpine Auricula* is what you require, and plants can be had from most nurserymen, or you may raise them from seed. It should be sown early in March in fine rich gritty soil in pans placed in such heat as a vinery at work or an ordinary hotbed affords, and the seedlings potted singly so soon as they are large enough, and be kept growing briskly under glass till the roots reach the sides of the pots, when they may be gradually hardened and then planted out in open beds or borders.

PLANTS FOR THE BACK WALL OF A VINERY (Idem).—There is too much shade in such a position for Roses, but Camellias answer admirably, clothing the walls with perennial greenery, affording a considerable supply of cut bloom and not affecting the health of the Vines in the slightest degree.

GRAFTING OLD APPLE TREES (Notice).—Old Apple trees if healthy may have the branches shortened and grafted with considerable advantage, but when traces of disease and decay are combined with barrenness the trees should be destroyed. The process of grafting should be applied to the branches and not to the stems, so as to turn the new growth to account for the production of fruit quickly. Thus much generally. In your particular case of huge old trees in a small kitchen garden we should be disposed to destroy all the old barren trees, to retain, at least for a time, those which are good kinds and still afford some fruit, and to plant some strong pyramids, which would soon bear fruit, and not trench upon space required for vegetables, as the old trees must now do. Here are a dozen cases of excellent free-bearing sorts for dessert and kitchen use. *Dessert:* Devonshire Quarrenden, Joanneting, Kerry Pippin, Ribston Pippin, Cox's Orange Pippin, Margil, Nonpareil, Kaddleston Pippin, Court of Wick, Adams' Pearmain, Court Pendu Plat, and Pittaston Nonpareil. *Kitchen:* Keswick Codlin, Duchess of Oldenburg, Lord Suffield, Manks Codlin, Collins, Cox's Pomona, Nelson Codlin, Emperor Alexander, Alfriston, Bedfordshire Foundling, Gloria Mundi, and Nonesuch.

OLEANDERS SHEDDING THEIR FLOWER BUDS (A Notice).—Oleanders established in well-drained pots cannot easily be over-watered. Any fault in the drainage would prove fatal to the flower buds, and we suspect it has been so in your case. You may cut down the branches to within a few inches of the pots, and when the buds commence swelling shake most of the old soil off the roots; give plenty of drainage. Repot in rich gritty soil, give water freely and regularly, keep the foliage clean, let the plants have as much light and air as possible, and although you have only a window for them, yet the new growth will yield some fine clusters of flowers. We have seen such window plants exhibited in very creditable condition.

BOX HEDGE (A Country Vicar).—The Box has such a mass of roots that you may employ plants for your hedge of any size from 1 to 6 feet, the only objection being the very considerable additional cost of large plants. A foot apart is quite close enough for the small size, and the larger ones should have a proportionate amount of space. Plant now, or as soon as soil and weather prove favourable. Holly would make a better fence against sheep than any other evergreen.

HYBRID PERPETUAL ROSES FOR WALLS (Idem).—Lord Raglan and Madame Clémence Joigneux are hardy and vigorous. Glory of Waltham is also a good dark variety for covering a wall.

RAISING CLEMATIS FROM SEED (John Brettell).—There are two ways of doing this—in pans placed in a greenhouse or vinery, or under a handglass upon a warm border. If your space under glass is much restricted the latter method will be best, especially as the seed does not always vegetate quickly; and we have found the wild *C. Vitalba* to spring up from seed much sooner than garden hybrids. This tendency to vegetate slowly leads us to avoid subjecting this seed to a strong heat, from the great risk of its becoming rotten when left long in hot moist soil.

SHRUB SCREEN IN A COLD DAMP DISTRICT (E. S.).—There is no better shrub for your purpose than the Holly. The common form, *Ilex aquifolium*, would answer, as would also the more green form, *I. tortuosa*, with which might be mingled an occasional plant of the rich yellow-variegated variety, Golden Queen. Plant these for a screen, and enrich the front of it with Rhododendrons.

BLACK CURRANTS BARREN (J. K.).—The early flowering of your Currants is very unusual. Destroy the whole of them, they are worthless, and plant Black Naples and Lee's Prolific Black in equal numbers.

NAMES OF PLANTS (J. B.).—*Saxifraga hypnoides*. (*M. D. D.*)—*Medicago Helix*. (*A. A.*)—We think *Iris fastidiosa*, but should see a flower.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

MANAGEMENT OF PASTURE AND PARK LAND.

UNDER this heading we propose to refer to all kinds of permanent grass land, including meadows, parks, upland pasture, and chalk downs. We may venture to say that no land in England is so much neglected as the permanent pastures. In the majority of the grazing districts few persons ever think of manuring grass land, but prefer to take all they can get from it whether little or much; and it is a great reproach to agriculture that the arable land should receive all the manure made on the farm whilst the pasture receives none at all. We therefore think that in letting land conditions should be made for the manuring a portion of the pastures every year either by dung and compost, or by guano or nitrate of soda and superphosphates according to the nature of the soil. As an instance of the state of much of the park lands of the country, we were once walking across a gentleman's park

with the proprietor, and we were asked what was the cause of so much moss which appeared on the surface. Our reply was that the growth of moss was the last effort made by Nature to clothe the land, it not being rich enough to bear grass. This remark was intended to make an impression on the mind of the owner, and it did so, for soon afterwards the park was manured both with guano and a dressing also of yard manure and compost, since which the moss has entirely disappeared, and the pasture bears abundant crops of grass both for hay and feeding. We would further remark that, on the home farm of the property alluded to, at our suggestion the plan is to put all the made dung and all the earthy materials that can be obtained upon the park land, and manure the arable with artificial manures only, such as guano, nitrate of soda, and superphosphate. Nothing that will rot is ever allowed to be burned upon this farm, but is carefully heaped with dung and earth for manure. Even couch grass is carefully preserved, and sometimes laid out on the pasture direct from the fallow field, and we have often noticed that it has equalled the effect of dung in improving pasture. This we account for by the earth which is connected with roots of couch; the latter, being drawn into the land by worms, opens and benefits the land in that way. The permanent pastures of the kingdom occupy every kind of subsoil—stone, chalk, gravel, clay, peat, sand, marl, &c., and of course these various soils require somewhat different treatment. Some of the nicest pastures for sheep and cattle are found upon the stone brash in various counties, and perhaps no pasture requires less done to it than this, the herbage being always sweet and requiring only artificial manures occasionally. Chalk hill pastures, commonly called downs, have been generally ill-used from time immemorial, the practice being to feed with sheep in the summer and fold them on the arable land at night time, thus robbing daily the pasture which was already too poor to bear anything but the most scanty herbage. We know, however, of a few instances where farmers manage better, and manure the land, waiting until there is grass enough to fold off with the sheep, which receive cake and remain on the pasture night and day; thus the grass is consumed in season, and manure enough left to insure a better and improving crop in the future. Guano and nitrate of soda we consider the best manure for chalk downs or any grass land resting on chalk, as some park land does in the southern and eastern counties.

Pastures resting on gravel are about the most difficult to improve by ordinary means of any we know, because they suffer so much from drought in dry seasons. They should, therefore, receive dressings of dung and earthy compost, in order to increase the depth of soil. The herbage on this land is always fine and sweet, and will, therefore, bear the stimulating effect of nitrate of soda and common salt. It sometimes occurs that these soils are sour, and grow sorrel and other weeds, indicating want of chalk, and where this can be readily obtained it should form part of the compost, being mixed beforehand with earth, &c. If chalk is not easily obtained lime should be mixed with the earth instead. Clay-land pastures vary so very much that it is difficult to treat them all alike with advantage. Some of the very best pastures we know of in the vale of Aylesbury and other parts of the kingdom do not require any manure if really well stocked and properly managed in other respects, for they will keep and feed-off fat a bullock and two sheep per acre without oilcake or any artificial food. Now, much of this land is very wet in the winter months, and will not bear the tread of the cattle except in spring and summer. We have known draining done in such soils, but it has ruined the pasture, inducing the land to crack open in wide fissures, the grass dying away in dry weather; and our experience induces us to believe that no grass land should be drained if it is free from rushes. This is our test. Some of these rich pastures through neglect are often found to produce large tufts of coarse grass commonly called hassocks. These should always be cut-up with the turf-cutter or sharp spade in the month of March, not burned into ashes, but used instead of straw in the cow houses, and then rotted into dung; a little seed sown over the vacancies will soon take the place of the useless and damaging hassocks. The principal cause of the rich clays being so productive is the potash they contain, and in many instances it will be desirable to have the subsoil analysed, because the appearance of the rich and poor clays being so much alike that the eye even of experienced men cannot always detect the difference. This is precisely the case with clay land we farmed for a long period, for although the soil looked all alike, yet some was extremely fertile, whilst in other parts it hardly produced average crops under good management. Much of the poor clay soils in almost every district of the kingdom is unproductive whilst in pasture, chiefly because it was never properly seeded down, but often allowed to run to waste after being exhausted by continuous corn-cropping.

WORK ON THE HOME FARM.

The Work for Horses will be various, in accordance with the state of the weather. In open weather the fallow ploughing will be continued, if frosty the carting of dung, earth, or chalk, as required by the system of management adopted. If the weather should prove fine it is well to continue the threshing of corn and

the storing of the straw, for as the corn is put in ricks now instead of stored in barns, the straw should be put into rick as fast as it comes from the machine. It should also be as carefully thatched as a rick of hay, and cut out in the same way, whether required for use or sale. It is desirable also that the threshing of corn should be done in the winter months when labour is plentiful and not so much required in the fields, the corn itself being sold or stored as may be decided upon, according to price, &c.

Hand Labour.—Men will be employed in the routine labour of the farm, such as filling and spreading dung, earth, &c., trench-digging in the meadows, regulating the flood water in the irrigated meadows, cutting hedges, ditching, banking, &c. Women, too, should be regularly employed, otherwise we cannot expect them to work a few days and be idle by turns, and at the present price of men's labour and boys away at school, women's labour is most important, for much work on the farm must go undone, particularly the light work, or else it must be done by men without turning to profit. Women will now be employed in preparing roots for the cutter and pulper, and also cutting roots (unless done by horse or steam power) for cattle and sheep. Men and women both may also be employed in forking-out couch, docks, &c., in the turnip fields, before feeding-off with sheep, also upon land not yet ploughed for spring corn. We find it always answers a good purpose to fork-out the couch grass, if there is ever so little, because if allowed to remain it increases so much that instead of spending 1s. to remove it by hand labour, it soon costs 20s. in horse labour, besides the delay at seed time.

MANAGEMENT OF HEDGES.

THOSE that have hedges to cut this is the time to have them done. Should any have a young hedge to begin with let it grow as it likes for four or five years, and do not top or buckhead it, but have it laid or, as is termed in Lincolnshire, plashed, and this should be neatly done. The fence or quick is planted in double rows, cut down one row close to the ground, not allowing any of the stools to be more than 2 inches above the ground; the other row will, if the plants are good, require half of them to be cut out, the other half to be laid down and neatly staked, placing a light binder on the top. After plashing do not top or trim any of the growth before the following autumn or winter, and after that trim once a-year and no more, as experience has proved that frequently trimming hedges is quite a mistake. I am acquainted with a district where great pride is taken with the hedges, and these were trimmed twice every summer, and to the astonishment of all these hedges became covered with white moss, and after a few years began to decay and die in patches. These hedges were then allowed to grow for three years, and after that they were plashed and trimmed once a-year only; but the herbage was cut clean from the roots, which is of the greatest advantage to get what is termed a good bottom. In some districts all young hedges are trimmed from the first year they are planted, and where this practice prevails there are scarcely any good hedges to be seen; that is, they all have open bottoms, whereas had they been plashed or laid they would have made as good fences as any in the north.

Those who have young hedges to plant should trench the ground 2 feet deep and plant on the level without any mound or high bank, which is not only unnecessary but disadvantageous to the growth and well-being of the hedge.

Draining.—Those who have any draining to do this is the season for doing it. This work requires some judgment, and should not be commenced hastily and without much consideration. First of all test your ground well by digging out holes in different places and ascertain where the surface is the strongest. Next ascertain the direction in which the water flows, then cut your drain on the angle to catch the water across the flow. I have seen a few drains carefully cut in this way do more good than a greater number of others cut in the same direction or course as the water flows, and the expense saved, has been considerable.—A LINCOLNSHIRE FARMER'S SON.

THE JARDIN D'ACCLIMATION OF PARIS.

LONG after the establishment of our Regent's Park gardens Paris was without any similar place of recreation worthy corresponding with them. In years past we have made peregrinations to that dull, distant, and deplorable place the Jardin des Plantes. Strange is it that any place near Paris can be so dull. We went there in hopes of seeing something interesting in the collection of birds, but vain indeed was our hope, for beyond a flight of Pigeons we never found anything worth looking at. These were certainly remarkable for their great diversity; an original stock of many pure breeds had evidently been allowed to cross and recross till a singularly mottled and particoloured flight resulted. The Jardin d'Acclimation is a far different place, and fully supplies the want. It was a sunny Sunday afternoon in April when we last visited it. Thither all Parisian life seemed flowing; the fashionable classes in smart carriages up the Champs Elysées, the humbler bourgeoisie on those singularly convenient omnibuses by obscure

COLLECTION OF FOUR DIFFERENT VARIETIES.—1, J. Baker. 2, S. Salter. 3, R. Leech. SELLING CLASS.—*Parrot*.—1, J. Newman. 2, S. Salter. *chc*. *Simon*. *Single Bird*.—W. Massey. 2, H. W. Weaving. 3, S. Harding. SPECIAL FLYING CLASS.—1 and Cup, F. W. Benham. 2, W. H. Dunham, jun. 3 and 4, H. Duke, jun.

CAGE BIRDS.—BLACKBIRD OR THRUSH.—1, H. Clift. 2, T. Jenkins. *chc*. J. Symes. GOLDFINCH.—1, S. Cook. 2, Mrs. J. T. Holmes. *chc*. J. Orchard. LOVERIDGE & COWARD, E. Arnold. BULLFINCH.—1, Mrs. Goddard. 2, F. Woolford. *chc*. J. Stickland. LARK OR LINNET.—1, E. Arnold. 2, Master A. Hill. ANY OTHER VARIETY OF BIRDS.—1, S. Cook. 2, R. Shutter. *chc*. Mrs. J. T. Holmes. CANARIES.—*Belgian*.—1, Rev. H. F. Hamilton. 2, Mrs. W. C. Drummond. *Norwich Plain*.—1, E. Arnold. 2, Lovering & Coward. *chc*. Lovering & Coward, E. Arnold, J. Hopkins. *Norwich Crested*.—1, E. Arnold. 2, F. E. Dunn. *chc*. Lovering & Coward, E. Arnold. *Cinnamon*.—1, Lovering & Coward. 2, Mrs. Parsons. *chc*. J. D. Mowlem. W. Wallis, Lovering & Coward. *Any other variety*.—1, J. Hopkins. 2, F. Matthews. *chc*. J. D. Mowlem. MULES.—1, J. Hopkins. 2, S. Cook. PARROTS.—*Grey*.—1, Miss Wellman. 2, J. Loveless. PARROTS OR PARAKEETS.—*Any other colour*.—1, Mrs. W. C. Drummond. 2, T. Parsons. *chc*. W. Watson, J. Goldie, Mrs. G. Goddard, T. Jenkins, F. Matthews. MACAW OR COCKATOO.—1, Mrs. W. C. Drummond. 2, J. Goldie. LOVE BIRDS.—1, J. T. Holmes. 2, Mrs. G. Goddard. WAX BILLS, WEAVERS, QUEENSLAND FINCHES, OR SPICE BIRDS.—1, Mrs. T. S. Biggs. 2, Mrs. Parsons. *chc*. Mrs. G. Goddard. ANY OTHER VARIETY OF FOREIGN BIRDS.—1 and 2, Mrs. G. Goddard. *chc*. Mrs. Drummond, Mrs. J. T. Holmes. CAGE OF SIX CANARIES.—1, E. Arnold. 2, J. Hopkins. 3, Lovering & Coward. *chc*. J. Spencer (2). Rev. H. F. Hamilton, J. Hopkins. SIX FOREIGN BIRDS.—1 and 2, Mrs. G. Goddard. 2, Mrs. W. C. Drummond. *chc*. Mrs. J. T. Holmes. SIX ENGLISH BIRDS.—1, Mrs. J. T. Holmes. 2, S. Cook. 3, Mrs. W. C. Drummond. SELLING CLASS.—1, F. Geary. 2, Lovering & Coward. 3, Mrs. Parsons. *chc*. G. F. Dunn, E. Arnold, Mrs. Parsons.

JUDGES.—Poultry: Messrs. Teebay and Dixon. Pigeons: Mr. P. H. Jones. Cage Birds: Mr. G. Billett.

THE NATIONAL PERISTERONIC SHOW.

REFERRING to my notes I find the next birds to be noticed are the Barbs. After careful inspection of these I have come to the conclusion that the character of the head is much altered from the form of bygone days, being more round, and few if any birds possessing the peculiar angles so sought for by the Barb fancier of only a few years ago. As to size they are much larger birds, and as a sequence coarser, and they seem to have quite lost that neat appearance that a good Barb should possess; while the eye wattle of many was of such a deep crimson as to call forth the remark from many besides myself that it was at least peculiar, looking almost unnatural. Still, as time changes all things, why not the colour of the wattle around a Barb's eye as well as it does the shape and character? Yet there were several very good birds shown, some of Mr. Headley's and Mr. Jones's showing fine breadth of skull and were also well wattled.

The Carriers were in great force, Mr. Headley showing the greatest number; but other good fanciers were well represented with less numbers, but in many cases not less in quality. It struck me that most of the birds lacked what I call finish in the eye wattle, some looking as though it was dragged out to cover a certain space, and lacking that easy regularity of form and points which if well set in complete circles around the eye greatly adds to its beauty. I well remember a bird of this description shown some years ago at Birmingham, when my much-esteemed friend and truly excellent fancier Mr. Cottle was my colleague in judging. It was a great treat to both of us to come across such a bird, and we had it out again and again simply to admire before we could leave it to proceed on our duties. The wattle was so even, the texture so fine and silky, and the colour of the flesh left nothing to be desired. To my mind I have never seen that bird's equal before nor since; but that is one out of twenty-five years' experience in reporting and nineteen years inclusive of judging at Birmingham. It was a prodigy. Many and many a good bird has passed through my hands in that time, but still my memory reverts to that bird. I look on the Carriers as one of the breeds of Pigeons that the shows have really benefited. Take the present for instance; and where a few years back could half the number of such good birds be found? There was scarcely a really bad bird among them. As a whole the sight was most gratifying.

The Almond Tumblers I did not think quite so good as usual, Mr. Jayne's birds being less good in the ground colour. Mr. Merck had a very good bird as regards colour—only some shades too light—being of the pure almond yellow that the old fanciers so greatly admired, and had it only been deeper and richer would have been a typical bird.

As regards the so-called Jacobins, I did not see one true to the name, nearly all being what the Jacobin fanciers would call Ruffs. Some I pointed out to a friend were the exact counterpart of the variety known as the Ruff, and had none of the properties of the Jacobin intact, save their colour and eye. They were very pretty birds I am willing to own; but why call them Jacobins when they lack their properties and are much more nearly allied to the Ruff, which is next to the Capuchin? I suppose next Pouters will be bred without their large windbag, and the excuse will be "it is the fashion." I hope some day to see prizes offered for the true old Jacobin pure and simple, and perhaps that will be ere long, for it is a great pity so very beautiful a variety should be lost. There must be some in Germany, for I had a pair of Blues from there that left little to be desired either in size, form, or colour. In England I do not know where to look for them.

The pens of English Owls were anything but satisfactory. There they were with gullets, but mostly without, though so many have said that they should have them, which I say distinctly they

should not. But in the same pen there they were with and without—with frills and with roses—large coarse-looking birds; and as a friend of mine who is looked on as a most excellent fancier (and he also exhibited Owls then) remarked, not one good Owl head among them. Gone is the curved-down hooked beak. As he justly remarked, they are getting quite Tumbler-headed in comparison to what they were. As far as I could see and learn, the only improvement in them is the price asked, and obtained in many cases. I agree with my friend and fellow fancier, the Owls are not what they should be.

I was much pleased with the Turbits, and I thought Mr. O. E. Cresswell's birds simply beautiful. I have never seen better frilled birds in the whole of my experience. I think they even surpassed the pens that used to be shown by my late friend Mr. Wicking. This is high praise.

The Fantails were well shown. I preferred Mr. Cresswell's to the other pen, being more true to form and less long; but both had good birds, though all were large. The Pouters were a goodly show, the best being those of Capt. Hill. Mr. Jones's Turbitens were interesting and pretty, though I think the name an odd one, but no doubt will answer until a better is found. Mr. Vere Shaw's cage of Toys contained some choice specimens. The one called a Blue Domino had in my opinion the greatest number of properties and was a most excellent bird, though all were to be much admired both for quality and condition.

There is much credit due to the Committee for the way in which the Show was arranged, which as far as I could learn gave general satisfaction, and it was a credit alike to both exhibitors and management. As I have said at the commencement of these notes, one ought to feel thankful there are such shows, where the fancier can go and criticise, study and learn, the present state of usefulness and beauty of his own particular hobby.—HARRISON WEIR.

TONBRIDGE POULTRY SHOW.

THE second annual Exhibition of Poultry, Pigeons, Cats, and Rabbits was held at the New Public Hall on the 16th and 17th inst. We have had on so many occasions to complain of irregularities in the management of shows, that it is now not only a pleasure but an act of duty to give committees credit for their successful exertions. In many shows a considerable improvement has recently taken place, and Tonbridge in management is entitled to stand in the first rank. The cards were placed on the pens with a promptitude that could not be surpassed, and the space at the command of the Committee was utilised to the best advantage.

Dorkings.—First in the Coloured cock and hen class were good birds and well shown, but we thought Mr. Parlett's pen in the class for two hens the pick of the lot. *Spanish* were capital classes. Cock and hen, first a handsome pair; the lobe of the cock was good in quality and shape. Second a nice pen, cock's comb well placed on his head but ugly in shape. The class for hens for quality we thought the best in the Show, but we noticed some birds disgracefully trimmed. It is difficult for judges to draw a line where trimming is recognised, but we do hope they will set their faces against mutilation of this description. *Cochins*, a beautiful pen of Whites and a Buff hen of Mrs. Christie's were the only specimens that call for special notice. *Brahmas*, Dark cock and hen, an excellent lot, Mr. Lingwood winning with his usual form of birds. Hens, with the exception of the winners, were very moderate. Lights, fair classes but not equal to the Dark. *Game*.—Mr. Warde exhibited some very stylish birds, and was deservedly first in both classes. Mr. Maynard was second with a smart bird. He showed a slight indentation in the skull, otherwise he might have turned the tables on the first. *Hamburgs* were fair. *French* above the average that we have seen exhibited lately. In the *Crève* class we could not find a bad pen. *Bantams* were not so numerous as usual. *Ducks* were not superior.

Pigeons surprised us, some of the best birds in the kingdom competing for the prizes. Carriers a grand class. We were pleased to see the Judge giving style and carriage their just recognition, and not making his awards dependant simply on eye and wattle. Pouters and Dragoons were well represented. Two classes of splendid Jacobins followed. In the class for Tumblers some charming specimens were to be found. One class of Homing Antwerps contained thirty-five entries. To go into the merits of a class of birds like this would take considerable time; the Judge made his selections and then highly commended all the birds, and from appearance they deserved it. Owls.—The winner a grand bird, but we did not quite like the shape of his frill. Barbs another excellent class. Here we thought a bird of Mr. Fulton's should have been in the prize list.

The small-bird classes, particularly the Canaries, had some very good birds, but the pepper-fed predominated. In the Cat classes there were two rarities exhibited—namely, two Tortoiseshell-and-white he cats, and both good. The first-prize White long-hair was very large, and the whole Show good for a local one. In Rabbits a very good doe was first with ears 28 inches long by 5½ inches wide, the next was over 21 inches in ear; both were

good in other respects, as were several other Lop-ears. The Silver-Gray had two fine specimens, and the Any other variety class some splendid specimens for size, &c. The first prize went to a Patagonian, the second to a very beautiful Hare Rabbit.

JUDGES.—Poultry: Messrs. Nichols and Leno. Pigeons: Mr. Esquilant. Cats and Rabbits: Mr. Harrison Weir.

DARLINGTON BIRD SHOW.

THE annual Bird Show held in conjunction with the Industrial Exhibition was opened on the 21st inst., and will continue open until Saturday next. There were upwards of three hundred entries—not so many as might have been expected, or as the very liberal schedule issued by the Committee deserved. In the class for Clear Jonque Norwich there was only a solitary representative; in the Jonque Norwich, evenly marked, none. May it be asked, Where were the breeders and exhibitors of Norwich birds? Surely they have not all sold off their best birds! If so, with what fear and trembling did they refrain from coming to the post in response to one of the best schedules ever issued?

The score of Belgian birds exhibited were the best lot we have seen of late, the contest for honours being mainly betwixt Mr. Forth of Pocklington and Mr. Butter of Sunderland. There was a very spirited competition in Class 4 for Glasgow Dons, the first and second-prize birds in particular being well up in their characteristic points. We cannot say much for the Norwich classes, excepting in Class 6, which contained three specimens of fair quality far ahead of another in the same class, a very quiet-looking bird indeed. Class 8, Buff Marked Norwich, with three well-marked birds, each deserving of the honour gained. There were a few good Crested Norwich, the Buffs as usual being the best. The first-prize in Class 14 (Any variety of crest) was a good all-round bird. There were several variety Gold and Silver Lizards exhibited, notably the first Golden bird, which won easily; good first and second Silvers, and a fair first in the Broken-cap Gold, but which was somewhat surpassed by an excellent Broken-cap Silver bird. There were a dozen Cinnamon birds, out of which number seven specimens were good, particularly the first and second Jonques and first and second Buffs. The Yorkshire classes were well filled, and contained many good Clear Yellows and Buffs. In the Evenly-marked class the first and second birds, the former in particular was a pink of perfection for condition and marks. Mule birds were very good. The first prizewinner in Class 27 was a splendid specimen of a Clear Buff Goldfinch and Canary Mule; the second-prize bird, a Jonque, being very close in attendance. The Any variety of Mule class was a choice lot; the first a Mealy bred between a Brown Linnet and Canary, and the second a Jonque bred between the Greenfinch and Canary. The other birds in the class were very attractive. There were several good cages containing four birds, the first prize going to Lizards, the second to Crested Norwich, and third to Yorkshire birds. Cages with pairs of birds were in abundance, the first prize being awarded to a beautiful pair of marked birds apparently of the Norwich and Yorkshire strains. A good pair of Lizards took second place.

Foreign birds were in good condition, a fine Green Parrot in Class 32, and a Pennant Paroquet in Class 33 taking a first, with a beautiful King Parrot second, both birds being in extra good condition.

British birds were well represented with Goldfinches, Bullfinches, Blackbirds, Thrushes, Starlings, Skylarks, and Linnets, and there were also representatives of the Jay and Owl tribes. Many of the prize birds were beautifully plumed.

VARIETIES.

A CORRESPONDENT writes from Buckinghamshire:—"I must say the new year opens with good prospects for the autumn-sown crops. Wheat and oats are looking remarkably well; even wheat that has been sown late after turnips is up and looking strong and healthy. The autumn has been good for the seeding, and a good acreage of autumn corn has been sown this season."

—PRODUCE OF EGGS.—I have only seven hens, three of which have not been laying since September, and five pullets hatched in May, yet from the 6th of November to the 18th of January these have laid 143 eggs, as I find on reference to a book in which they are daily noted down. I may mention that they are fed with oats, whole Indian corn, and Indian meal. The latter is mixed with scraps of all kinds and given to them warm. —HENWIFE, *Stirling*.

—MR. JOSEPH BLUNDELL, in a valuable paper on dairy farming read at the Botley Farmers' Club, observed: In drawing a comparison of the consumption of grass, it is somewhat interesting to know how much more profitable is the conversion of grass into milk instead of beef. Many years ago a great agricultural authority—Sir John Sinclair—arrived at the conviction from practical data that the same quantity of pasture grass which would add 112 lbs. to the weight of an ox would enable a cow to yield 350 gallons of milk. With present prices, beef at 9d. per lb.

and milk at 8d. per gallon, the former would realise £4 4s., and the latter £11 18s. 4d., being a wide margin in favour of milk. In considering this matter we must remember that much of the pasture used for dairy purposes would not feed a bullock fit for the butcher, nor could so many head of cattle be fed per acre in grazing. As for dairy cows, my own calculation is, therefore, that grazing store cattle would yield a profit of no more than 6s. per head per week; whereas a dairy cow's produce in milk would yield 12s. per week during twenty weeks, dating from May 1st. These results, however, may be slightly varied by the qualities of grass and other circumstances.

—AN excellent authority has written as follows on egg-producing food:—If fowls are kept well, but not on too fattening a diet, with plenty of green food, and a sheltered yard, you cannot do more to promote their laying. Highly stimulating food may induce a hen to lay a little earlier, but it is at the expense of health and permanency. We say may, because we incline to the opinion that health and vigour will induce early laying quite as successfully as forcing diet.

—MR. LAW, M.P., in referring to the peasant proprietorship existing in the Channel Islands, stated that the largest estate in the Channel Islands was 100 acres, and the average size of the estates was about 5 acres. There was a small community of peasant proprietors who exhibited a wealth and prosperity not to be found anywhere else. There could be no true family life without that which in its proper sense was a home, and there could not be a home in its truest sense if the owner was not assured in its possession for himself and his family.

—WHY FARM LEASES NEED NO LONGER BE STRINGENT.—In my early days, seventy years ago, farms had to baste themselves, for there were then no manures, bones, or artificial manures; no cotton, linseed, or other cakes; no importation of foreign feeding stuffs, such as maize, &c.; no means of intercommunication by railways, steamships, telegraphs, or penny post; no mangels or kohl-rabi; no farmers' clubs or agricultural shows, no agricultural newspapers, no steam thrashing machines, no steam ploughs, no reaping or mowing machines, and scarcely any agricultural implement makers. But now all this is changed, and British agriculture has become almost a manufacture. These changes have rendered necessary a great increase of tenant capital, but it can hardly be expected to flow in sufficiently or abundantly unless duly protected, and with the newly required freedom of action. No doubt landowners have considered all this, and have perceived the necessity for concurrent changes and improvement in leases and homesteads, with drainage, enlargement of fields, &c., so that the British farmer may be better enabled to sustain the contest with foreign competitors.—J. J. MECHI.

—DR. FELIX SCHNEIDER, who has been trying various experiments for destroying lice on poultry, has communicated the following to a French agricultural journal:—"After trying various remedies for freeing my pigeons and poultry of vermin but without success, the idea struck me to have recourse to a well-known insecticide used by the vine-growers of the south for the destruction of the phylloxera, the sulphide of carbon. The very next day I was agreeably surprised to find that the enemy had left, leaving none but dead and dying behind, and on the following day not a single living insect was to be found, while my birds were sitting quietly on the roof enjoying an unwonted peaceful repose. This lasted for twelve days, till the sulphide of carbon had fully evaporated. Twenty-four hours later a fresh invasion of lice had put in an appearance under the wings of the birds in the warmest portions of the house, where there were no currents of air. I replenished the supply of sulphide, and the next morning only a few of these were remaining. The next morning every trace had disappeared. Since that time I have personally made a great number of further trials with the sulphide with immediate and absolute success. I should recommend the sulphide of carbon to be put in small medicine vials hung about the pigeon house or poultry roost. When it has about three parts evaporated the remainder will have acquired a yellowish tinge, and no longer acts so completely as before, but if it be shaken up afresh it will still suffice to keep the enemy at a distance."

—If you desire cheaper meat, writes Mr. J. Algernon Clarke in the *Daily News*, by all that is reasonable and economical help us to stop the immense and scandalous waste of food which makes meat dear; secure our herds and flocks against calamities which eat up our resources and deter us from multiplying our production; and leave off exposing 45,000,000 home animals to the havoc of imported disease for the sake of having it said that some of the 1,800,000 foreign animals imported in a year may be killed at one end of a railway journey in this country instead of at the other.

—WITH forty-seven millions of arable acres at command, the population of Great Britain and Ireland is largely dependant upon foreign supplies for daily food. The extent of this dependance is not generally understood; but last year Great Britain expended for foreign food no less than £96,879,000. The year before the money paid for similar articles amounted to £87,129,000. So in one year there is an increase of hard cash paid away to foreign

lands of nearly ten millions; or there was within a few hundred thousands of an increased outlay of ten per cent. These startling facts are surely enough to make everyone pause to consider what we are doing at home to allow this outlay to be possible. Free traders have said over and over again that such an expenditure is the best thing that could occur, as the money is scattered abroad in new countries and new markets are created. But it seems to us that if a large share of this ninety-seven millions sterling had been earned by the agricultural labourers and tenant farmers of Great Britain for subsequent distribution by them equal "markets" would have been created at home, and the manufactured articles thus in increased demand at home might have been supplied at a less cost for carriage.—(*Irish Farmers' Gazette*.)

SIZE OF BAR-FRAMED HIVE.

YOUR correspondent "B. & W." referring to my account of experiments which I made with a sixteen-frame wooden hive last summer, tells us that he has constructed a similar one, but thinks that he has not got the correct measurements: $22\frac{1}{2}$ inches is not correct. The inside length should be $22\frac{1}{2}$ inches. For six extra bars he requires six half-inch extra spaces between bars, and $\frac{1}{2}$ inch \times 6 for space occupied by the bars—i.e., 3 inches $+$ $\frac{3}{4}$ inches = $3 + \frac{3}{4} = 3\frac{3}{4}$ extra. To this add $14\frac{1}{2}$ inches and we have a total $22\frac{1}{2}$ inches. I hope that your correspondent will find the working of the hive satisfactory. However, he knows as well as I do that it is not a particular "hive" which gives success, but the system of management carried out by the bee-keeper, providing that he has at his disposal such a hive that the bees and combs in it are at any time easily inspected and manipulated.—P. H. PHILLIPS, *Offley Lodge, near Hitchin*.

OUR LETTER BOX.

FOOD REQUIRED FOR FOWLS (*H. S.*).—What is the nature of their run? Does it afford food of any kind? We say of any kind, because there are two sorts of natural food. One is plainly visible in the shape of herbage or of growing seeds, the other is found by the foraging fowls in odd corners and other places where there is covert for them. This may be easily tested. Let a barrowload of fresh soil be brought from the garden or from a roadside. Let it be examined ever so closely nothing will be perceived. Turn the barrow over and leave a heap, then turn out the fowls. Then will begin a scene which will remind you of an ant-heap. The cock will give his invitation in the customary "cup" or "cook." The hens will respond; they will call the chickens, and all will go to work. The mound becomes flattened and spread out. All are busily at work, and there is not one that has not partially filled its crop. In these particulars the fowls seem to have a microscopic power which enables them to see that which is not visible to the naked eye. Like the drop of water at the Polytechnic, so clear to the unaided sight, but when viewed with help was an animal pandemonium, where every evil passion was let loose, and violence and bloodshed became the rule; so, wherever there is a run with grass and fresh earth there is food for poultry. If your fowls have such a run, then 4 ozs. of good grain, barley for preference, will be plenty of food for each bird. If the run is very bare give 5 ozs. during cold and trying weather, and diminish it in the fine weather in the summer. There must be discretion in the mode of feeding. Corn must be thrown down on a hard surface where it cannot be trodden-in or hidden, otherwise, whatever your allowance may be, you are not sure the birds get it. It is also profitable to give a little at a time in several feeds.

CROSSING FOWLS (*A Subscriber*).—We do not approve your cross. The Spanish are good but not early layers. They moult with difficulty, and they do not sit. The Brahmas are early layers, moult easily, and are good sitters. The cross will not make a better fowl than this latter. As a rule we are not fond of crosses, as we believe pure breeds are better. Nevertheless, if you will cross, we advise Brahma pullets and a Dorking cock. We must, however, tell you it is not the property of any breed to lay in the winter. It is essentially dependant on age and good, judicious, but not over-feeding. Those who will have early eggs must keep pullets to lay them. They must be renewed year after year, for they are only pullets once.

PROFITABLE EGG-PRODUCERS (*H. N.*).—After many years of experience we believe the best egg-producers—i.e., those that lay the greatest weight of food in eggs, are the Dorking, Brahma, Cochins, and Game. They are also all good sitters and mothers. We keep Brahmas and Cochins. We have not been without eggs one day throughout the winter, and the number now increases daily. If in your garden you want vegetables and flowers out of season—those that should come in March, if you want them in December you make your arrangements accordingly. If you trusted to the naturally sown seed it would come in its season. Just so, where other arrangements are not made fowls will not, being left to themselves, lay till February. That is the natural time. But knowing that pullets lay at a certain age, and that at the time when you will want eggs, you must make provision in the spring by saving such as will attain the proper age at the required time. There is then no difficulty in arranging for your eggs during every month of the year. Almost any breed will answer this purpose; but if you seek a breed that will when adult lay in the winter instead of the spring, we must say we know of none such.

PIGEON LAYING FOUR EGGS (*An Old Subscriber*).—It is certainly very unusual for a Pigeon to lay four eggs, and to have also hatched four young birds. We have before now had a bird that laid three, but the last was rough-shelled and imperfect. Are you sure that no other hen laid to yours? For instance, a hen which just before had lost her mate, and then she naturally would be beaten away from the nest, and not be allowed to sit by the cock of the other hen. There is much need of investigating such a case very closely, as it is wholly out of the natural course of things. It would be worth while to shut up the pair by themselves, and take every care against any trick being played. It is also odd that there should be four birds hatched, as a Pigeon can only suitably cover two eggs; and then this is winter, and the very best nurses only succeed in feeding three, and those not well. Has no mischievous boy deceived you?

UNITING SWARMS (*T. Hops*).—By no means touch your hives now. Wait till March or an unusually still warm day in February for the rectification of your fallen combs. Put your box as a super over not under the hive. You may unite the other two hives, but not till much later in the year. It should have been done in the autumn. Smoke and sprinkle the bees with sugar and water in warm weather, then reverse the hives so that the weakest may go up into the strongest hive. Choose a late hour in the afternoon. What you say of the bees coming out on the warm days and not returning home is a bad sign. We should fear they were starved, and, having no food, became too enfeebled to return. If so, you must supply them at once with food in the best way you can. Perhaps the best plan is to make a temporary eke and lay some nice comb full of food flat in it, then gently elevate the hive on the top of the eke, close up the entrance, and shift the hive for the night by your kitchen fire. You can replace it in the morning, and let the bees fly the first fine day.

FEEDING BEES (*J. E.*).—If your bees have eaten all the food you gave them in autumn they should be fed at once; but if they have stores enough to last them a month longer better not feed them till February. By turning-up the hive you may examine the combs and ascertain if feeding is necessary. In February, feeding will do good whether the bees need or not.

BEE DYSENTERY (*Gardener*).—The bees of your second swarm are suffering from an attack of dysentery, which will probably ruin the hive. Give them a little good syrup made of the best lump sugar. The glass cover between the bars and the lid of the hive should be removed—indeed it should not have been placed there at all.

FALLEN COMB (*Phonetic*).—If there is no brood in the comb that has fallen the sooner it is removed the better. You will do no harm to the bees by turning the hive up for examination, and by so acting you may be able to fasten the comb in its old position. Sectional supers may be used on any kind of hives with adapting boards.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. $51^{\circ} 32' 40''$ N.; Long. $0^{\circ} 8' 0''$ W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain.
	Barom. at 3 ³⁰ and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass		
1878.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Jan.											
We. 16	30.284	45.3	45.5	S.W.	42.0	51.9	41.7	64.4	37.3	—	
Th. 17	30.401	40.0	38.1	W.	42.0	51.1	37.7	76.2	32.3	—	
Fri. 18	30.503	32.4	32.4	N.W.	41.0	42.0	30.6	41.6	27.3	—	
Sat. 19	30.493	37.1	36.7	N.	39.3	45.2	30.3	49.6	26.0	—	
Sun. 20	30.361	45.0	42.6	S.W.	41.0	47.5	38.6	50.0	32.9	0.010	
Mo. 21	30.127	51.6	50.3	S.W.	42.0	55.6	44.9	60.5	45.0	0.165	
Tu. 22	30.001	51.9	51.9	S.W.	44.1	54.8	51.0	57.0	49.8	0.012	
Means	30.307	43.3	42.3		41.6	49.7	39.0	57.0	35.5	0.185	

REMARKS.

- 16th.—Very bright sunny morning; afternoon cloudy but fine; brilliant sunset and moonlight evening.
17th.—Fine and sunny until late in afternoon, afterwards dull but fair.
18th.—Rather foggy morning, still thicker and dark about 10 A.M., cleared slightly about 3 P.M., but came on foggy again at night.
19th.—Slight fog early, and dull all day.
20th.—Much warmer; damp and dull all day, with drops of rain at intervals; windy.
21st.—Very mild and muggy, overcast but without rain; windy at night and very warm.
22nd.—Gale in early morning, with heavy rain about 2 A.M.; close dull day, fresher after 7 P.M.; windy at night.

The most remarkable feature of the week has been the high temperature of Monday and Tuesday; the latter having a mean temperature of 51.7° , is within one degree of the hottest recorded at Greenwich during the sixty years ending with 1875. The 23rd and 24th of January, 1834, seem to have much resembled the 21st and 22nd inst.—G. J. SYMONS.

COVENT GARDEN MARKET.—JANUARY 23.

We have no alteration to make this week.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.	
Apples.....	1	sieve	2	6	to 5	Melons.....	each	0	0	
Apricots.....	dozen	0	0	0	Nectarines.....	dozen	0	0	0	
Chestnuts.....	bushel	10	0	30	Oranges.....	100	3	0	10	
Currants.....	1	sieve	0	0	Peaches.....	dozen	0	0	0	
Black.....	1	sieve	0	0	Pears, kitchen.....	dozen	1	0	0	
Figs.....	dozen	0	0	0	dessert.....	dozen	3	0	13	
Filberts.....	1	lb.	0	6	9	Pine Apples.....	1	lb.	1	6
Gobs.....	1	lb.	0	0	Plums.....	1	sieve	0	0	
Gooseberries.....	1	bushel	0	0	Raspberries.....	1	lb.	0	0	
Grapes, hothouse.....	1	lb.	1	6	8	Walnuts.....	bushel	5	0	
Lemons.....	100	6	0	10	ditto.....	100	0	0	0	

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	0	0	0	Mushrooms.....	pottle	1	6	0	0
Beans, Kidney forced.....	100	1	0	1	0	Mustard & Cress.....	punnet	0	2	0	0
Beet, Red.....	dozen	1	6	3	0	Onions.....	bushel	2	6	3	0
Broccoli.....	bundle	0	9	1	0	pickling.....	quart	0	4	0	0
Brussels Sprouts.....	1 sieve	2	6	0	0	Parsley..... doz. bunches	2	0	0	0	0
Cabbage.....	dozen	1	0	2	0	Parsnips.....	dozen	0	0	0	0
Carrots.....	bunch	0	4	0	6	Potatoes, frame.....	1 lb	1	0	0	0
Capsicums.....	100	1	6	2	0	Potatoes.....	bushel	3	6	7	0
Cauliflowers.....	dozen	2	0	4	0	Kidney.....	bushel	5	0	7	0
Celery.....	bundle	1	6	2	0	Radishes..... doz. bunches	1	0	1	6	0
Coleworts..... doz. bunches	2	0	4	0	0	Rhubarb.....	bundle	0	6	1	0
Cucumbers.....	each	0	9	1	0	Salsify.....	bundle	0	1	0	0
Endive.....	dozen	1	0	0	0	Scorzonera.....	bundle	1	0	0	0
Fennel.....	bunch	0	3	0	0	Seakale.....	basket	1	0	0	0
Garlic.....	1 lb.	0	0	0	0	Shallots.....	1 lb	0	3	0	6
Herbs.....	bunch	0	2	0	0	Spinach.....	bushel	2	6	4	0
Lettuce.....	dozen	1	0	2	0	Turnips.....	bunch	0	3	0	0
Leeks.....	bunch	0	2	0	0	Veg. Marrows.....	each	0	0	0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	JAN. 31—FEB. 6, 1878.	Average Temperature near London.			Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h.	m.	h.	m.	h.	m.	h.	m.			
31	TH	Royal Society at 8.30 P.M.	44.4	30.5	37.4	7	43	4	45	7	8	2	55	28	13	44
1	F	Geologists' Association (Anniversary) at 7.30 P.M.	43.3	31.0	37.2	7	41	4	47	7	32	3	50	29	13	45
2	S		43.7	31.0	37.4	7	39	4	49	7	52	5	4	0	14	0
3	SUN	4 SUNDAY AFTER EPIPHANY.	44.3	30.9	37.6	7	38	4	51	8	6	6	16	1	14	6
4	M	London Institution at 5 P.M.	44.8	33.3	39.0	7	36	4	52	8	17	7	26	2	14	12
5	TU		45.8	33.7	39.8	7	34	4	54	8	28	8	35	3	14	17
6	W	Society of Arts at 8 P.M.	46.3	32.7	39.5	7	33	4	56	8	38	9	44	4	14	21

From observations taken near London during forty-three years, the average day temperature of the week is 44.6°; and its night temperature 31.5°.

DUKE OF BUCCLEUCH GRAPE.



HERE seems to be considerable diversity of opinion as to the merits of this Grape, and from the various reports which have lately appeared in the horticultural press there can be little doubt that many growers have not succeeded in growing it to that perfection of which it is capable. Being one who has succeeded in growing it in such condition as to cause my employers to order a very considerable extension of its growth and to tell me that Duke of Buccleuch and Muscat of Alexandria are the only two white Grapes worth growing, I think it not more than simple justice to state my experience of it, and how much it is appreciated in the dessert by my employers.

Ever since the Duke was sent out I have never found any difficulty in producing handsome bunches and very large berries of it alike when grown on its own roots and grafted on Black Hamburgh and on Muscat of Alexandria; but I find that the heat which is necessary to do justice to the Muscat is too much for the Duke, inasmuch as the latter ripens so long before the former that the heat necessary in the Muscat house causes the Duke to shrivel prematurely unless used when just ripe; therefore I have confined it to plants on its own roots and to grafts in the Black Hamburgh house, where some six varieties of Grapes requiring the same heat are cultivated. Under such treatment the Duke has always produced plenty and to spare of bunches for a crop, but more freely on the young wood than on the spurs until the spurs are three years old when on its own roots. On the Hamburgh stock it fruits more freely on the spurs than when on its own roots. I have ripened it to an amber colour the first week in September, and sent it to table fresh and plump in November, and find that it is most highly relished. Indeed, having a Vine of Buckland Sweetwater in the same house I had instructions to let the cook have its fruit when he called for white Grapes.

The treatment the Duke receives has not been in any way special except that in thinning it the operation is not performed till the berries are the size of peas, for if it has a fault with me it is that it does not set very freely, but always sufficiently to produce uniformly well-shaped bunches without artificial impregnation. As I have said, the result of the above experience is that preparations are being made to plant a houseful of it.

Considering the precautions taken to prove this Grape before it was sent out, I think it scarcely fair to the raiser of it for those who have failed to grow the Duke satisfactorily to speak of it and its raiser as they have spoken. It will be remembered by many that before it was certificated by the Royal Horticultural Society Mr. Barron of Chiswick was sent from London to inspect the crop of it at Tweed Vineyard and, if my memory serves me aright, to Drumlanrig also, and that his report of what he saw there led to its being certificated. Not only so, but I believe it was sent by hundreds of pounds weight to Covent Garden previously to this inspection—at all events before it was sent

out—and these realised more per pound than any mid-summer white, or indeed black, Grapes.

I have no desire to champion this Grape nor to say that anyone has mismanaged it, but I do say from my own experience of it that it is a grand Grape, noble in appearance, and, excepting the Muscats and Frontignans, having no equal in quality as a white Grape. I think it scarcely fair to write of it as some have recently written of it, that its being sent out was the "greatest cheat," which means, of course, that its raiser is a cheat. Has any other Grape been put to the test of Covent Garden and inspected by a competent agent at two different gardens before they were certificated?

If it gets the same chance as well-cultivated Black Hamburghs it is my opinion that the Duke of Buccleuch Grape will succeed. There are circumstances under which, of course, it will not succeed, and they are these: It will not fruit freely nor set well if planted and trained thickly; nor will it come to perfection under a system of steaming, damping, and syringing, now abandoned by all who produce good Black Hamburghs and good clean Grapes of any other variety.—COLUMBUS.

ROSE NOTES DURING 1877.

"WILTSHIRE RECTOR," "D., Deal," Mr. Luckhurst, and others have all addressed a new year's greeting to the readers of the Journal, and it would not be like old times if I, who am a humble representative of the Rose interest, should not offer my congratulations. The year that has lately passed away will ever be reckoned as one of the most memorable in Rose annals, for during that year the National Rose Society held its first exhibition. This though a financial failure, was in everything else a great success, and, what is more, the financial failure was not allowed for one moment to prejudice its future career. Noble generosity from some of the great cultivators of the Rose (both professional and amateur) at once made matters straight, and we were told to go on and prosper, which we intend to do. An independent show, which was one of our great aims, we found to be impracticable, and so we drew in our horns and resolves to throw our protecting aegis over some kindred society, and this year we unite with the good folks at Sydenham in June, and with the cute men of the north country at Manchester in July. We think, and we are not afraid to say, that such a show will be held at Sydenham as has not been yet seen in even that great crystal home of the Rose. We mean not to draw in our horns because we are taken in tow by a great Company, but to sail our ship alongside our great consort with honour to ourselves and benefit to her.

The Show at St. James's Hall will, I think, long linger in the minds of all true rosarians. It was a real show. It was like classical music, the highest and purest form of art. Rosa alone without any adventitious aid held her court. Musica even kept away; no string band discoursed sweet strains from the orchestra, for that was given up to the sweetest of the members of Flora's court, and the eyes and noses and not the ears were appealed to; and yet in

another sense; even the ears drank in their music also. "How are you, Wyld Savage? Have not seen you since we met two years ago at Hereford. Glorious sight, old fellow. Splendid show;" and every kind of congratulatory greeting met one on every side. Mr. Jowitt and Mr. Baker's struggle will not soon be forgotten. Neck to neck they ran for a long time, and it was only a matter of a few small blooms in the latter's stand which secured the cup to the former. But the glorious contest will be waged again at Sydenham, and these and other giants will put in an appearance such as will arouse the admiration of all who love the Rose.

And now what shall we say of that much-contested point the financial success of Rose shows? I suppose, as a rule, we must say that Rose shows cannot pay—or rather do not answer. They exist almost by the skin of their teeth, and many have to resort to expedients which are hardly fair, and would not certainly be employed if the financial strain could be relaxed. Such, for example, is the entrance fee of a guinea or half a guinea demanded at all but metropolitan shows. Surely the exhibitor who is put to the great expense of bringing his exhibits often hundreds of miles should not be called upon to subscribe as well to the show, and yet without these subscriptions no country society could exist.

What other expedients are there to make Rose shows pay? Some men answer, "Give smaller prizes." I cannot assent to this, not on my own account, but, sinking all personalities, on account of my brethren in general. Anyone who has shown Roses for any time knows the great cost of the exhibitions to him. He has to take a long journey, and pay for his gardener as well as himself. My friend Mr. Baker had three assistants at St. James's Hall, and though he arrived before the doors were open he could only just get his Roses staged in time. Then you have to stay two nights and sometimes three in town, or have to leave your man and hurry home to prepare for the next show. The prizes really are most inadequate to the expense. The only thing I can suggest is to reduce the number of classes, but then that will also reduce the size of the show. The whole matter is a most difficult problem, and no solution at present offered is satisfactory. During the coming season it would be very interesting if the secretaries of the various societies were to give an account in the *Rose Journal* of their receipts and expenditure.

The great nurserymen really cannot be asked to accept smaller prizes; their expenses are really very large. They take one or two men, whose time at that season of the year is most valuable; they and their foremen are both absent from home; they have to show so many blooms, and their boxes are so numerous, that they have to pay large sums to the railways for extra weight, and their other expenses are doubtless great; so their prizes cannot be cut down. Added to this, they are the most generous-hearted men I have ever met. The freedom from jealousy, the bond of brotherhood so warmly felt and evinced by them all, makes Rose-showing a perfect treat, as (if for nothing else) a place where charity in the fullest sense of the word is so largely evinced. At least these are my sentiments, but then I am only a—WYLD SAVAGE.

VEGETABLE CULTURE.

CHAPTER V.—BROCCOLI.

THERE is so little perceptible difference between Cauliflower and Broccoli, and as the one gives a continuation to the other of the same vegetable, this chapter may very appropriately follow the one on the Cauliflower. The Broccoli grows wild on the shores of the Mediterranean. Like other vegetables for which there is a great demand the original form has been improved immensely, and the varieties now in cultivation far exceed in number any other of the Brassica family. Numbers of varieties said to be new are annually introduced, but most of them prove to be synonyms. But there are exceptions to this rule, and the greatest that has been made for many years past is to be found in Veitch's new Self-protecting Autumn Broccoli, which in my opinion is a very valuable variety. It is called an "autumn" Broccoli, but in reality it is both an autumn and winter variety, as we cut it from the beginning of November until the end of January. Its heads are large, compact, well protected, and high flavoured.

Referring to the last chapter, and beginning with the end of the Cauliflowers, Veitch's Autumn Giant will bring the supply up to the beginning of November. For carrying on the supply during November and December at the very least, Veitch's new Self-protecting may be grown. Walcheren and

Grange's Autumn White Cape are frequently said to be good autumn Broccoli, but they are as tender as summer Cauliflowers, and should never be depended on. For cutting during January no better variety can be grown than Snow's Superb Winter White, and Backhouse's Winter White is very little inferior to it. Osborn's Winter White is another useful kind for the same period.

For cutting throughout March and April we have found none so suitable as Cooling's Matchless, Frogmore Protecting, and Leamington. To succeed these in May and June the old Wilcove has few superiors; but Melville's Superior Late White, Cattell's Eclipse, Carter's Summer, Sutton's Late Queen, and Webb's Champion have all the requisite qualities to give a supply until the early Cauliflowers come in.

It is sometimes thought that as Broccoli come in one after another they must be sown in succession, but this is not the case. Those heading in April and May have to be sown at the same time as those which head in November. A supply may be secured from then for the next six or seven months from two sowings. The first sowing should be made during the middle or the end of March, and the second about the end of April or beginning of May. A little seed of all sorts should be sown at both of these times. Unless in exceptionally late springs it is not necessary to sow the seed under glass, unless it is in a cold frame where the lights can be drawn on when necessary. We have always found Broccoli do well in a border exposed to the sun but sheltered from cutting winds. Strong manure need not be used to raise the young plants. A quantity of old hotbed manure when leaves were chiefly used in its formation is excellent stuff to dig into the ground on which the seed beds are to be formed. It should be turned into the soil a few weeks before sowing the seed. It is most convenient to sow the seed in beds about 3½ or 4 feet wide. In a small border only 8 or 10 feet wide two sorts may be sown on each bed. When the beds are long a little space about a foot wide should be left between each sort. Good seed should never be sown thickly. Place the name of each variety on a label, and mark underneath the date of sowing. This applies to all kitchen garden seeds. In cold soils as soon as the seed is sown it should be covered over with about half an inch of old soil sifted fine from the potting shed. Where this cannot be had common garden soil mixed with its own bulk of leaf soil will do as well. Where the soil in which the seed is sown is good a little may be thrown out of the alley and sprinkled over the seed, then rake the bed lightly over, and finish it off by giving it a gentle beat all over with the back of the spade. This should be done when the ground is in good working order. It is better to wait a week or ten days than to sow the seed shortly after rain. The second sowing must be similarly conducted; but when the soil is very dry on the surface it should be well watered before sowing the seed, which must be covered over immediately. When the weather is dry at the time the young plants are coming through they should be frequently watered. This must be attended to in light shallow soils.

As Broccoli is frequently planted after early crops of some other kind, it is generally necessary to give the young plants more room than they have in the seed bed before finally planting them out. As soon as the plants are about 4 inches high the largest of them may be drawn out and dibbled about 4 inches apart into any rich piece of ground. Plantations may be made from both sowings, as the plants are ready and the ground vacant, during May, June, and July, supposing Broccoli to be succeeding early Potatoes, Peas, Turnips, or even late Broccoli. As soon as the ground has been cleared of these a good coating of strong farmyard manure should be spread over the ground and dug-in deeply. If the plants are ready for planting the surface of the ground should be broken fine with the spade as digging goes on, and the plants should be put in before the soil dries. When the plants are not ready at the time of digging the surface should be left rough, and just before planting break it fine with a four or five-pronged fork. As it is often hot dry weather in June and July it is a great advantage when the plants can be planted either just before or immediately after a shower. Independent of this, each plant should be lifted with a trowel and planted with a good ball. When planted properly the plants sustain little check. Dry weather has its advantages for planting, and so has wet. Excepting just a shower at planting time there is less trouble with the plants when dry weather follows until they have started into growth. It is next to impossible to prevent snails from eating numbers of the plants, and they have a persistent

way of taking them immediately after they are planted. Dry weather checks their movements, wet aids them. Dusting with fresh lime, placing a ring of sharp ashes round each plant, and gathering the snails frequently with the hand, must be diligently attended to whenever a plant is lost. When very dry weather follows the planting and the plants make no progress a good watering at the root assists them greatly. Where many are grown good soil and plenty of manure should be more depended on for making good plants than watering them with liquid manure.

From 2 feet to 30 inches every way is a suitable distance for planting. The ground on which all Broccoli is planted should be well exposed, as plants grown in a sheltered place do not endure a severe winter well. When the plants are 10 inches or a foot high the Dutch hoe should be run deeply through the soil amongst them, and then a little soil should be drawn to their stems. In another fortnight or three weeks both hoeings should be repeated. This will complete the earthing-up, and should any weeds appear between the rows afterwards the Dutch hoe must be employed to keep them down.

In autumn the plants must always be kept free from dead leaves. The heads should be cut before they can be fully seen through the leaves. Frost injures them, and on its appearance a number of the leaves should be broken and turned over all heads approaching maturity. During very severe weather or in the time of snow a little dry fern or straw should be thrown over each plant, especially those forming and just about forming heads. When a lot of them are ready to cut at the same time a number of them should be lifted when dry and set in a shed where a mat or a little straw or fern can be thrown over them. Very severe weather frequently kills many Broccoli plants; but in localities where this is known to occur all the plants that are to produce heads throughout the winter and spring should be lifted with good balls and planted in a trench with their heads facing the north. The leaves protect the centre better when lying like this than when the plants are upright. This transplanting is generally done in October or the beginning of November. Sometimes a spadeful of soil is taken from the north side of each plant, and the plant laid and fixed on its side without lifting it entirely. The little fly which causes so many of the Cauliflowers to go "blind" acts the same on the Broccoli; but the soot-and-lime remedy is as fatal to it on the one as the other.—A KITCHEN GARDENER.

KEEPING GRAPES—DEW.

AFTER a tolerably lengthy experience of gardeners I have arrived at the conclusion that they, like the representatives of most, or perhaps all other crafts, have their "little weakness"—a weakness that I doubtless share, but of course without admitting it, perhaps even without knowing it. Our peculiar idiosyncrasy is in disclaiming that Nature specially favours us when we achieve a success. We do not readily admit that we possess any natural advantages of site or soil or water when we succeed rather better than our neighbours; yet, nevertheless, the advantages often exist although their precise nature may not always be easy to define.

Mr. Thomson possesses natural advantages for growing Grapes at Drumlanrig, and he sets a worthy example by making the best of them. Nature has provided him with good soil, splendid drainage, and a liberal water supply, which are prime essentials in Vine culture. Those are his advantages. His disadvantages are a deficiency of sun, still he manages with surprising success to produce good Grapes, and with little trouble prevents them from decaying. According to his own showing they may be said to keep naturally. Wherein or in what manner, then, does Nature aid him? I have suggested by affording him a screen of the best of all materials—clouds—for arresting the radiation of heat and thus preserving an equable temperature, which prevents the deposition of moisture on the berries, which is, as I have proved by direct experiment, a fertile source of decay. Although Mr. Thomson has adjudged my logic right and premises wrong, I shall yet remain firmly convinced that I have pointed out the real cause of the immunity from decay of the Drumlanrig Grapes until a more cogent reason is forthcoming.

I remember reading an article written, I think, by Mr. Thomson, setting forth the extraordinary amount of cloud incident to the vale of Drumlanrig. The fact was placed very strongly, for if I remember rightly the number of cloudy days in the year were stated, and these were very remarkable.

Now it amounts to a certainty that when clouds prevail to such an unusual extent that the temperature is more equable than when clouds and sunshine alternate extremely, and that the deposition of dew is in the same extent governed. It is a law of Nature which we are bound to accept. Yet when Mr. Thomson lays stress on the remarkable absence of sun, it is not to be inferred that it never shines or that there are not occasional starlight nights. Neither is it surprising that when sunny days do occur that the danger of scorching is unusually great; nor, on the other hand, that when clear nights occur the dews are unusually heavy. We have no right to expect any other results than those. The character of the district remains the same, and that character is remarkable for its high cloud average.

An occasional and extreme variation of temperature during any one day does not afford correct evidence of the true nature of the district. A difference of 57° in sixteen hours is an extreme range, but how many times has that occurred in a week, or I might add in a year? I have an entry in my meteorological diary of 2 inches of rain falling in two hours, and 4.95 in the day of twenty-four hours; yet that does not prove the district a wet one, for when the returns from several hundreds of rainfall stations were published, that referred to was amongst the ten lowest, and was indeed very near the bottom of these. So much for the value of a solitary instance of extreme figures of temperature or rainfall in determining the average character of a given locality.

During some seasons Grapes keep about as well on the Vines as when the stems bearing the bunches are placed in bottles of water and arranged in the Grape room. That is when the seasons are more than usually exempt from, not occasionally extreme, but frequent and sudden changes of temperature. I have been in the habit of trying both plans for several years, and have observed particularly that the more equable has been the temperature the better have the Grapes kept on the Vines. I have gone further than that, and have proved that by affixing a blind to a roof of a division of a vinery, and drawing it over the glass during clear cold nights, and often in the middle of very sunny days, that the Grapes in that division kept better than those that had no screen to arrest radiation, and consequently to promote an equable temperature. When Grapes are bottled and placed in a room having a temperature ranging between 40° and 45° their surfaces are in a condition to condense a minimum quantity of moisture, hence the absence of decay. In a vinery exposed to constant and sudden changes of weather the temperature is necessarily more variable, and the greater and more frequent are the changes the greater is the extent of the decay of Grapes. That such is the fact I have proved by many years of careful observation in my own district, and I suspect it is the same in other localities.

I readily admit that occasional extreme changes of temperature exist at Drumlanrig, but sunny days and clear nights are the exception rather than the rule. Mr. Thomson has written strongly on the unusual prevalence of cloud in his district, and just in proportion as clouds prevail, in the same proportion is radiation arrested, an equable temperature promoted, and the decay of Grapes prevented.—A NORTHERN GARDENER.

AURICULAS—THE WOOLLY APHIS.

I WISH to give a warning word to the lovers of Auriculas.

Last year about this time I called attention to an insidious enemy in the shape of a subterranean wholly aphis, and some correspondence in your columns appeared upon its treatment which called forth a letter from the Rev. F. D. Horner, the prince of Auricula growers, the most successful exhibitor, and most authoritative of writers on the subject. I need not repeat his advice, I can only say I followed it, even to burning the frame on which my collection of plants had stood. Yet the aphis is now re-appearing, and in some cases with great vigour. It is exactly the time when it came last year, and I advise Auricula growers to turn out their pots and examine the drainage, the roots where they touch the pot side, and the neck of their plants, where the telltale white woolly substance will at once reveal the presence of the enemy. If he is there soft soap or Gishurst him; he may stand one application, but repeat it and disturbance is more than he can endure, while to allow him to remain is to insure the destruction of your plant's rootlets.

Another word. The late lamented Mr. Andrew Murray in describing Aphis Auriculae in the pages of the "Florist" acknowledges his very close resemblance to the aphis found on

the roots of the Jerusalem Artichoke, and I must say the points of divergence are so trivial as to make me think it possible the species are identical, and that the differences found may be caused by altered diet and circumstances. It would therefore be safest—until at all events authorities can definitely uphold the theory of the two species—that we should keep our Jerusalem Artichokes at a respectable distance from our Auriculas.—JOHN T. D. LLEWELYN.

NOTES ON THE APPLE.

I AM much interested in Mr. Killick's excellent remarks on orchard Apples, which, taken in connection with what has been written by a "A NORTHERN GARDENER" and others, prove that the Apple is at length asserting that position which it is justly entitled to by its manifold uses and importance.

I must apologise to some late writer on the Apple by having inadvertently spoken disparagingly of Lord Suffield Apple. I think I must have been misunderstood, as the little I said on it was that in this neighbourhood public opinion was about equally divided on the merits of Stone's Apple, or, as Mr. Killick calls it, Loddington Seedling, and Lord Suffield for supplying the early market; but as a gentleman living near here had gained the first prize at a metropolitan exhibition for a collection of kitchen Apples not long before Christmas, amongst which Stone's Apple was one of the varieties shown, I experienced a doubt whether at the same time a dish of Lord Suffield could have been found worthy of such a distinction. This was all that I recollected of having written other than in the most laudatory terms of this useful variety.

There are one or two other Apples that I wish to draw attention to, and if possible elicit further information. Mr. Killick incidentally mentions a variety very extensively grown around here, which usually passes under the appellation of Graham's, or, in a more lengthened phraseology, Graham's Pyle Russet, a late-keeping Apple of good appearance and size, and an excellent bearer. The tree attains the largest size of any variety grown, and its bloom when out is amongst the largest and boldest of any that are met with. I believe the variety has several synonyms, and I think is sometimes called Dusand and at times Gorham Gray's, but I do not think a name by which I have heard it called is at all the just one—Herefordshire Pearmain, as that fruit in some other counties differs widely from the one grown in Kent as Graham's. The latter, however, had a bad reputation at one time in the London market as a kitchen fruit, not cooking well, but this was evidently owing to its having been sent to market too early, as it is one of the best keeping Apples I know of, equalling the French Crab in the latter respect, but it is for its good bearing qualities and the large size the tree attains that I beg particularly to call attention to it. It is not unusual to meet with trees which have produced forty bushels of fruit and upwards—indeed, I am not sure if nearly double that quantity has not been affirmed to have been gathered from an old Graham. In point of size the old Golden Knob approaches it nearest—i.e., in size of tree, but they do not resemble each other, the latter being more semi-hemispherical in outline, whereas the former is a more upright grower.

The Northern Greening is also a favourite orchard Apple, and generally a good bearer, and last year, when so many sorts failed, there were some fair crops of this variety in the neighbourhood. I am also pleased to see that Mr. Pearson calls attention to another old favourite of mine, but little known in Kent I believe—Barton Freebearer; it was once grown largely in Lancashire, but I have not seen it for many years. Keswick Codlin is, of course, to be met with everywhere, and is perhaps the very earliest grown for market purposes, it being often gathered long before any others—in fact, the current remark is that a Keswick Codlin, like a Potato, is old enough as soon as it is large enough, and I believe at a further advanced state it carries better than the Cellini and some others. I am not sure if several more may not be added to the list of soft-skinned bad-travelling Apples. The Cellini is seemingly a descendant of the old Nonsuch, and is not the Emperor Alexander another doubtful traveller, pretty as it looks on the tree? The complaints of Duchess of Oldenburgh are very correct in this respect, whilst amongst old varieties fallen into neglect that can hardly be blamed for the fault given above is Manks Codlin, which used to carry well, but I believe is often met with in a speckled condition, and consequently unsaleable. I believe this is often called the Pitcher Apple in Kent; at least I could not distinguish their difference. I will now ask the question,

Is Normanton Wonder the same as Wellington? I confess not being acquainted with the first-named. Dumelow's Seedling we all know is the same as Wellington, and I can only add my testimony to what has been already said of the value of this variety as an orchard fruit. As a dessert fruit late in the season it will be some time ere the old Golden Knob be driven out of the market. It being a hardy and in general a good bearer, and the tree attaining to a larger size than most other table Apples with which I am acquainted, Perhaps one of the best kinds of recent introduction as a substitute for it is Court Pendu Plat, or, as it is often locally called, "Corpender," which has become a great favourite of late years in this neighbourhood.

I can confirm what Mr. Killick says about Lord Suffield as being too large to withstand the high winds that usually occur before the fruit is ready for gathering. This is also a complaint laid against other large Apples, many of which would be otherwise great favourites, as Gloria Mundi, Tower of Glamis, Warner's King, Bedfordshire Foundling, and many others, which accounts for the paucity of large varieties of Apples being found in ordinary orchards composed of standard trees.

Some varieties of Apples keep better during certain years than they do in others. A friend of mine had some Keswick Codlins of the growth of 1876 in very good preservation in March of the following year, and other varieties of that year's growth kept also very well; while during other years ordinary good keepers were almost all gone by the time above mentioned. Amongst old varieties still grown in this neighbourhood for their late-keeping qualities the old Norfolk Beefing is still often met with, and when grown on healthy young trees the fruit is not at all speckled or disfigured by disease; but the one having the reputation of being the latest keeper is French Crab, which I believe has many aliases, but is usually known hereabouts by the above name. The new Hawthornden has all but quite ousted the old one, which has become more diseased than varieties probably ten times its age. I find, however, I have said enough on this head for the time being, but am exceedingly glad to see the subject has been taken up so well by others.—J. ROBSON.

A FOSSIL FUNGUS.

IN the *Journal of Horticulture* for December 27th last (p. 486) an excellent paper was published on the Potato disease, and reference was made by your correspondent to a fungus in a fossil condition very similar with the fungus of the Potato disease, and named by me *Peronosporites antiquarius*.

The fossil fungus is of the highest possible interest; firstly, from its great antiquity, for it dates back so far into the past that it is simply impossible to compute its age in years; secondly, on account of the fungus being in all its parts exactly the same in size, structure and habit with similar fungi of to-day. This fungus preserved in a fossil collection, and belonging to the Palaeozoic age, came under my notice in the following manner:—My friend, Mr. William Carruthers, F.R.S., keeper of the Botanical Department of the British Museum, first observed this or a similar parasite some years ago in a slide (belonging to the Museum collection) prepared to show the nature of the scalariform axis of a *Lepidodendron* from the coal measures. By the permission of Mr. Carruthers I have examined this original slide, which contains spawn or mycelium and cells containing reproductive matter named oogonia; and I believe the fungus to be the same with the one now under description, although far less perfect. The newer and more perfect slides were lent to Mr. Carruthers a year ago by Mr. J. T. Young, F.G.S. Shortly after this time Mr. Carruthers placed the section with two others in my hands for careful examination. The slides had previously been seen when in the British Museum by Dr. Rostafinski, and this gentleman expressed his belief that the parasite in the vascular bundles belonged to the genus *Pythium* (a genus confused a good deal with the genus *Peronospora* by some recent writers on the Potato disease) on account of certain "swellings" occurring on the mycelium. I am not disposed to place much value on "swellings," but I place great value on the presence of distinct septa in the mycelium and zoospores within the oogonia. Dr. Rostafinski probably did not notice the jointed mycelium, or he would not have referred the fungus to *Pythium*, and I have authority for stating that he overlooked the zoospores. Mr. Carruthers in a few words (illustrated by a very small and sketchy woodcut) referred to this fungus in his printed presidential address to the Geologists' Association on Nov. 3rd, 1873.

So far as I am aware no perfect fruit has hitherto been detected upon any fossil mycelium, and no description, except that of a *Mucor*, also from the coal measures, has before the present instance been published of any well-defined fungus belonging to the Palæozoic series of rocks. It is, however, possible that a paper in the "Annals and Magazine of Natural History," 4th series, vol. iv., 1869, p. 221, and tab. ix. and x., describes and illustrates a fungus of a somewhat similar nature with my *Peronosporites*. The paper in question is communicated by Messrs. Albany Hancock, F.L.S., and Thos. Atthey, and purports to describe five species of "*Archagaricon*" from the Cramlington black shale. The authors state that the fossil fungus has been found at Newsham and in other localities. They, however, describe "lenticular swellings" with a "reticulated surface," a state of things I have never seen, and spore-like bodies within the mycelium, which is clearly an error of observation. The authors also refer their plant to *Sclerotium stipitatum*, and they say they can find no "important difference" to distinguish this latter plant from their coal fungi. Of course *Sclerotium* is not a fungus at all, but a mass of condensed my-

celium, and the Cramlington plants do not resemble *Sclerotia*. Plate x. might pass for *Peronosporites* drawn by a bad draughtsman unacquainted with fungi; but as the descriptions are imperfect and do not give critical dimensions, no one can say what Messrs. Hancock and Atthey really had in view.

Beginning with the mycelium of *Peronosporites*, a close examination of this shows that it is furnished with numerous joints and septa. If, therefore, any reliance is to be placed upon the modern distinguishing characters of the now living species of *Peronospora* and *Pythium*, as furnished by a septate or non-septate mycelium, then the fossil parasite belongs to *Peronospora*, and cannot belong to *Pythium* or any of the *Saprolegniæ*. The oogonia do not agree with *Cystopus*. Within many of the fossil oogonia the differentiation of the protoplasm into zoospores is clearly seen; but if any doubt could exist as to the exact nature of this differentiation, then other oogonia (or zoosporangia) on the same slide show the contained zoospores with a clearness not to be exceeded by any living specimen of the present time.

In the accompanying illustration is shown some of the

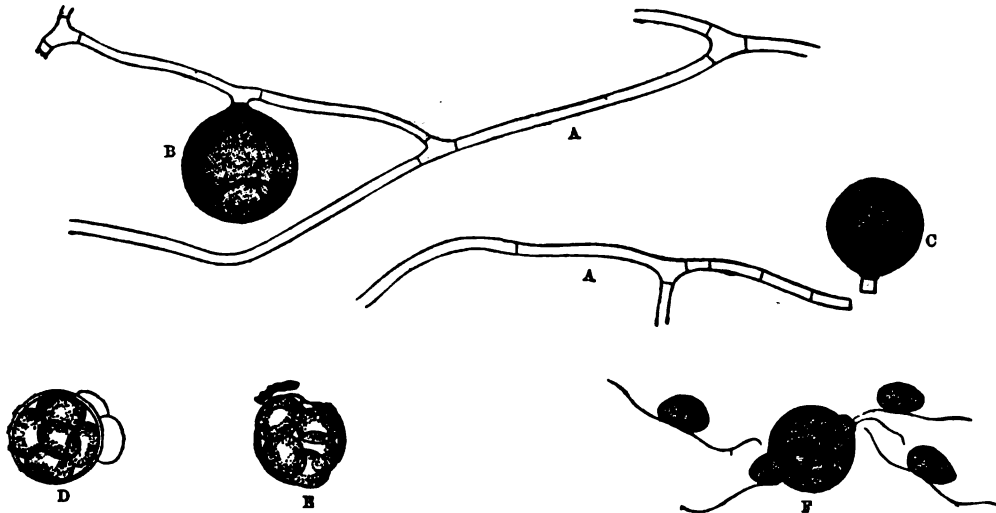


Fig. 14.—A FOSSIL FUNGUS (*PERONOSPORITES ANTIQUARIUS*, W. G. S.).

- A, A'.—The Fossil Fungus showing the jointed spawn threads and the cells (oogonia) containing the reproductive mass; at B one cell is seen still attached to its thread, and another is seen just detached at C.
D, E.—Oogonia showing the zoospores *in situ*.
F.—An oogonium from the fungus of the Potato disease, showing similarity of size in both oogonium and zoospores.
All enlarged 400 diameters.

jointed spawn threads (A A') and two of the cells containing the reproductive material. It will be seen that one cell (B) is still attached to its thread, whilst the other cell (C) is just broken off from its late point of attachment. At D and E are illustrated cells in which zoospores are to be seen actually *in situ*; at E the cell wall is seen to be somewhat broken, a very common state of things in similar bodies of the present day when mature and seen under the microscope. For comparison a zoospore-bearing cell belonging to the fungus of the Potato disease is illustrated at F to show that the ancient and modern bodies are positively identical, even the minute zoospores being exactly the same in size and form with those of *Peronospora infestans* when measured to the ten-thousandth of an inch. The average number of zoospores in each oogonium is also the same—viz., about seven or eight. The aerial condition of the fungus has not yet been observed. It may be objected that a primordial plant could not have led a parasitic life, for if parasitical then this fact would point to some pre-existing plant. But it must be remembered that some of the now existing species of *Peronospora* have a great tendency to put on terrestrial habits, and several species (including the fungus of the Potato disease) will grow and perfect their fruit upon humus alone. *Botrytis terrestris*, Pers., can always perfect itself upon the ground, and normally leads a non-parasitic life, whilst many of the *Mucedines* grow freely in cellars on damp walls or in any moist place. It is quite possible that many of these moulds were at first terrestrial, and that they ultimately took to a parasitic life as more favourable to their existence, and the occasional terrestrial habit of the modern

species may perhaps not unreasonably be looked upon as a reversion to the habits of an anterior state of existence.

After my remarks on *Peronosporites* had been made public P. Martin Duncan contributed a very valuable article to "Science Gossip," in which he demurred to my *Peronosporites* being "perhaps the oldest fungus on record;" but as I never used these or any such words I need make no reply further than by stating the expression to be none of mine. Mr. Duncan then gives several valuable references to where accounts are given of the *Saprolegniæ* and other *Algæ* being found in formations more ancient than the Palæozoic rocks. The information is doubtless valuable, but my description refers to a fungus as I estimate a fungus, and not to an *Alga*.

In *Peronosporites antiquarius* we then probably have a representative of one of the simple primordial plants of the great family of fungi. The *Peronosporæ* are closely allied to the *Algæ*—so closely, indeed, that De Bary says the species of the former may with reason be compared with the species of one group of the latter named the *Saprolegniæ*. Some botanists place the *Saprolegniæ* amongst the *Algæ*, whilst others consider them to be true fungi, and there is no reason why they should not be an intermediate class of plants. If *Peronospora* should, therefore, ever be considered an *Alga* (and its extremely close relationship is doubted by none), we have in *Peronosporites antiquarius* a plant which from its extreme antiquity would seem to lend some favour to the views of Sachs and other evolutionists. These observers place the lower *Algæ* amongst the primeval plants from which fungi and all other cellular *Cryptogams* have branched; and the finding of *Algæ* in

the Devonian and the upper and lower Silurian series of rocks, as enumerated by Mr. Duncan, is a further confirmation of the possible correctness of these views. Neither is this position invalidated by the presence of the more highly organised vascular Cryptogams living at the same period of time with the primordial Alga or Fungus; for although the vegetable kingdom may have now reached a generally higher development throughout the world than in the Palæozoic age, yet this fact does not make the supposition unreasonable that the lowest forms of life may even now be under the process of creation, or under the process of being evolved from still lower forms of life beyond the reach of our microscopes, but that life can spring from no-life I consider unreasonable. The lower forms of life of to-day are possibly destined for development into diverse forms for future ages; but this is no reason why the well-spring itself should stop at its source, whatever that source may be. It is clear that the law which called the Peronosporites into existence countless ages ago is in force now, and that this law produces the same results now as then. Whatever changes may have taken place in the external aspects of natural objects the fact clearly remains, that the great cause which first brought these objects into being has for immeasurable ages remained perfectly unchanged.

The readers of the *Journal of Horticulture* will remember that when my discovery of the resting spores of the Potato fungus was first made public a most improper criticism of my work was published by Professor A. de Bary of Strasbourg. My determination of the fossil fungus now under description has met with a similar criticism, not indeed from Professor De Bary himself, but from the hands of one of his pupils, Mr. George Murray, now of the British Museum. This gentleman writing to the "Academy" of November 17th last rashly stated my drawing with the oospores *in situ* to be "purely imaginary," as he could testify "from having seen the specimen." Now of course it depends a good deal upon who the gentleman is who "sees a specimen," and what sort of eyes he uses in seeing it. A rustic might look for a long time through a good telescope without seeing Jupiter's moons, but an astronomer who knows what to look for and expect sees them at once. As soon as I saw the oogonia in the fossil attached and free and exactly agreeing in size and habit with oogonia now existing I at once looked for the zoospores, and clearly saw them, not in one specimen only, but in many. It was only reasonable to imagine from the first that they would be there. When one sees a petal, what is more natural than to expect the presence of an anther or a stigma? My critic then went on to refer to the "Darwinian theory" and the "Struggle for Existence" (in inverted commas), subjects I never even mentioned in my paper. When I moderately replied to Mr. Murray he turned round (like Figaro) and said the oospore as figured by me, "if a correct representation, had become fossilised in the act of emitting zoospores, a process always swift" &c. Your readers will be surprised to hear that I never thought of, suggested, or wrote anything to this effect. Mr. Murray placed his own interpretation upon my drawing, and then proceeded to demolish his own (as I believe erroneous) construction. I wrote to this effect to the "Academy," but my letter possibly miscarried on its way to the office;—at any rate it was not published.

I need only say in conclusion that the "specimen" has been publicly exhibited by me under the microscope at Hereford, where some of the keenest English and French microscopists were present. It has been exhibited at the Linnæan Society and before a well-attended meeting of the Scientific Committee of the Royal Horticultural Society. At none of these meetings has any doubt whatever been thrown on the true nature of the fossil zoospores, so that Mr. Murray may be said to stand alone in his printed opinion of my "purely imaginary" representation of these bodies.—WORTHINGTON G. SMITH.

ANTHURIUM ANDREANUM.

THIS is a new species, said to be of the greatest magnificence, and enthusiasts say it will place A. Scherzerianum entirely in the shade. This is to happen not only from the superiority of its gorgeous cordate-ovate orange-red spathe, which is 3 or 4 inches across, but also from the finer habit of the plant. It is only in habit and form that we think it can be said to supersede A. Scherzerianum; in colour, if we may judge from the figure, it is not superior. It is really a very distinct plant, and therefore scarcely comparable. Its leaves are ovate-lanceolate and cordate, so that it may appear better

furnished, to use a technical expression. The spadix we should mention is yellow, having the peculiar feature of a white band about the middle, which covers a space equal to about one-third of the length. Horticulturists will no doubt await with considerable anxiety the appearance of this plant in commerce. It is in the hands of M. Linden, by whom it was named after M. André, who found it in New Grenada and transmitted it to Europe. A figure is given by M. Linden in his "Illustr. Horticoles," t. 221. We do not think it will displace A. Scherzerianum, but rather that cultivators will grow both.—R. I. L.

JUDGING ROSES.

"I HAVE been much pleased to read of Roses and Rose-showing in the *Journal*. It will certainly be a great drawback to small growers when they know that they must purchase such a large quantity of Roses before they can compete with any probability of success. I question, again, whether many growers would be so anxious to score a success as to pick all the buds from "a good Rose plant" but two, as is done by "WYLD SAVAGE," or to cut "the whole of a plant away" to obtain one bloom of Marquise de Mortemart, as was done by Mr. Jowitt.

Those who go in for exhibiting must make some sacrifices; but it does seem that the queen of flowers requires greater sacrifices to be made to her than any other flower I am acquainted with. The man who intends to exhibit and goes in to win must plant Briars and Manetti stocks. As some guide to those intending to plant I must say that the seedling Briar gives the best blooms in our light soil. I planted two hundred yearlings, each plant as large as a knitting needle, some three or four years ago; they made exceedingly strong shoots the first season, and were budded in July and August following the January in which they were planted. The next season I could have cut several stands of exhibition blooms from them.

I would have liked if "D., Deal," could have stated what he considered the best way to judge Roses. He objects to every conceivable way of doing it, but does not say how it ought to be done. He says at the outset that "we must dismiss from our minds the elaborate proposals which have been made as to taking the number of points in each flower." Now I believe that in a close contest there is no other way of arriving at a just decision. "D." supposes what never happened when he writes of judging thirty or forty stands of twenty-four Roses by points. Let us suppose forty stands are staged in one class to compete for, say, four prizes, I am certain that three good judges would walk quickly down the row and in five minutes they would reject all but eight or nine stands; they would then more closely scrutinise the nine, and would without going into points reduce the number to five or six. Now comes the tug of war. A, B, and C are so nearly alike that the best judges are puzzled what to do. There is only one way out of the difficulty, and that is to give a certain number of points to each flower, and the highest number gains the prize. If there is an easier way out of the difficulty than this I as a frequent judge in close contests would be glad to know of it. It will never do either to take into account a mass of difficulties as to the distance an exhibitor has to carry his flowers or the means at his command to produce them. A judge has only to do with the Roses as he sees them on the table; and to take into consideration the fact that A's soil is light on hot gravel, while B has good loam on the chalk, or that C has brought his flowers only twenty miles, while D has carried them through across country two hundred miles, is too much to expect from him.—J. DOUGLAS.

BEAR with me in this last attempt to put my proposals in a working form. Four sets of judges, non-exhibitors, having been selected and told off for the amateurs' side, four good old experienced hands and eight younger ones, making three to a set; one of the young hands in each set is only required to know a bad from a good bloom, or what is an ordinary exhibition flower and what is not. He is furnished with a packet of small black strips of card of the same size as labels. He is allowed five minutes' start of the other two judges, runs with a sharp eye over each row of blooms and excludes, disqualifies, or blackballs all the inferior non-exhibition flowers by laying the black card on such Roses. In the fifty-guinea-cup class his work should be very light. Now the other two judges follow, one with a packet of two-point cards, and the other old experienced hand with a small packet of three-points. All the blooms now before them are supposed to merit one

point as exhibition flowers without a card. Now the remarkably good blooms amongst these according to the rules and opinions of the judges have a two-point card placed against them; after this a few of only the grandest high-centred treble X flowers have the three-points card superadded to their other honours. The young blackball judge now comes behind the other two, counts up the points in each entry, writes the number on each, records it in his book, and returns with the other two to reconsider the verdict in cases of tying or disqualifying, and the work is done; and on this plan it should be to the satisfaction of even the losing exhibitor, who may be consoled by knowing his number of points and how near he was to winning, and so his disappointment if taken in a right spirit will bring him nearer perfection another year.—H. C., *Torquay*.

VINE BORDERS.

If my memory serves me right "A NORTHERN GARDENER" relies a good deal on the chemical effects of the soil used. So would I if I knew as much about it as a certain well-known gentleman who lives at Rothamstead; but after trying many times to persuade myself that I know something, I have reluctantly come to the conclusion that the little I do know of the subject is not worth taking into account compared with what gardeners know about the mechanical properties of composts, and somehow, provided the mechanical properties are right, good fruit is always forthcoming under good management. I, however, am persuaded of one chemical fact—that ashes of any sort (and coal ashes most of all), counteract to a great extent the stimulating effects of ammonia. And again bearing in mind that wood ashes are mostly potash, I am persuaded that it is unreasonable to use one-fifth or even one-sixth of this material in a fruit border; and that is what it comes to now after "A KITCHEN GARDENER'S" further explanation. As I said in a former paper, I prefer charcoal both for its mechanical and chemical properties; and although I do not know for a proved fact, yet I have a suspicion that most charcoal, especially when the dust used for covering the fire is mixed with it, contains quite a sufficiency of potash for the good of the Vine or any other plant.

I have a strong objection to making fruit borders very rich at first. Make them right in texture and sufficiently rich to promote average growth, and it is a very easy matter to add stimulants at any time.

Loam is now generally used quite fresh by all the best growers when they can get it; if it is fibry the decaying fibre will afford almost sufficient stimulant for the good of the plants during the first year or two, and if a small addition can be added about every two years afterwards there will be very little else wanted. All, however, cannot procure good turfy loam, and they must make shift with the best substitute at command. I consider the most important point in making a fruit border is to have it right in texture, and if possible it is advisable to make it lasting. Now charcoal is comparatively everlasting, and so are wood ashes; but vegetable manure is not, and after it is decayed I consider it does more harm than good. When manure is required I would use the strongest kind, so that the least possible bulk would suffice. Fibry turf does not remain fibry for ever, but if a border is made up piecemeal the roots of a Vine will to a great extent take the place of the decayed fibre in keeping the soil from becoming too close together, and the loss of manurial properties in the piece of border already decayed can be made good by the use of top-dressing and liquid manure. There is no doubt in my mind that night soil is the best of all stimulants for Vines, but it must be used with caution; it is no use to apply it in large quantities to weakly plants with few roots any more than it would be to feed a dying man with turtle soup.

Almost any kind of soil in an emergency may be used for the principal staple of a Vine border, and there is no doubt that common garden soil would produce better Grapes than half the fancy mixtures which are used in the present day. I have had to use some queer-looking stuff for Vines myself at times, but by mixing powdered clay when the staple was too light, burned clay when it was too heavy, and night soil when it was too poor, success has often followed where failure might have been expected.

I can of course tell of failures, but it will scarcely do for professional gardeners to indulge in such a luxury, unless their audience is exclusively well up in horticultural difficulties. I will, however, tell of one which was not of my own

making, and which may serve as a caution at the present time.

Less than twenty years ago I had, under the proprietor, the charge of the most popular Vine-growing establishment in Britain. When I entered on the scene hundreds of splendid Vines in pots such as I had not seen before in quantity met my gaze. It was in January or February and they were leafless, but appeared perfect in every respect, and many of them were sold for such a price as ordinary Vine-growers do not dream of asking. As spring approached they started growing strongly, and promised to produce splendid fruit; but the promise was all, and they came out of the pots simply like knobbed sticks, without the shadow of a root. They must have had good roots and plenty of them during the previous season or they could not have produced such canes. Many were the complaints received from people who had bought them, and although the best that could possibly be done under the circumstances was done to make amends, still the lost season could not be restored nor the disappointment prevented. The cause of the failure was calcined oyster shells, very good in their way no doubt, but they were used in excess. I do not know whether wood ashes in excess would produce a similar result, and I do not mean to try them.

Another partial failure was brought about by having the compost too rich in vegetable matter. The roots seemed to absorb more than the plants could elaborate or evaporate. The pith was black, and so were the bases of many of the leaf-stalks with the portion of the stem against them. This was cured by root-pruning and keeping the growth back till late in the season, when the sun became powerful and evaporation consequently very great.

These and many other warnings have made me decide on making fruit borders rather just a little too poor than a little too rich. The former is easily remedied, to remedy the latter is often impossible.—WILLIAM TAYLOR.

NOTES AND GLEANINGS.

At the great Summer Show and Meetings of the ROYAL HORTICULTURAL SOCIETY this year "an amateur," anxious to encourage the cultivation of Amaryllises, offers prizes to be competed for at the Society's Meetings to be held at South Kensington on March 5th and April 2nd. Mr. William Bull announces that the sixth annual series of prizes, amounting to £260, will be distributed in silver cups for 1878. There are prizes also offered by Messrs. James Carter & Co. to be competed for by gentlemen's gardeners and amateurs only. F. Gallop, seedsman and florist, Brighton, introducer of Miles's new Hybrid Spiral Mignonette, will offer through the Royal Horticultural Society, at their great Summer Show in May next, three money prizes to be paid on the first day of the Show, for twelve plants of his new Mignonette, to be grown in 6-inch pots. Prizes are offered by Messrs. Hooper & Co., September 17th, for dish of twelve fruits of Acme Tomato; November 19th, for the best dishes of nine tubers each of the following six new varieties of Potatoes—viz., McKinlay's Pride, Covent Garden Perfection, Grampian, Triumph, Trophy, Burbank's Seedling. Prizes offered by Messrs. Sutton & Sons, November 19th, for twelve Sutton's Improved Reading Onions, for twelve tubers Sutton's Magnum Bonum Potatoes, and for a collection of vegetables, in twelve distinct kinds. The exhibition of the Pelargonium Society for 1878 will be held, by arrangement with the Council, in the Royal Horticultural Gardens, South Kensington, on June 18th, in conjunction with the Rose show of the Royal Horticultural Society.

— ROBERT MARNOCK, Esq., has at the express wish of the Committee consented to preside at the thirty-fifth anniversary festival of the Gardeners' Royal Benevolent Society, to be held in the ensuing summer.

— A VERY practical improvement is in progress in the ROYAL HORTICULTURAL SOCIETY'S GARDENS AT CHISWICK. The long half span-roofed corridor-like structure which has hitherto been occupied with an useless collection of Vines on one side, and an equally unremunerative collection of cordon Peaches on the other, is being converted into a vinery which in a few years cannot fail being profitable. The varieties selected for planting the structure, which is upwards of 200 feet long, are the Black Alicante and Gros Colman. As a good border is being made and the house is now efficiently heated a satisfactory house of Grapes may be confidently relied on. The cordon Peaches which have been removed from the house have been planted against vacant walls in the garden. In a very few

years the value of the Grapes will defray the cost of the alterations, and a profitless house will be rendered profitable.

A MEETING of the Executive Committee of the NATIONAL ROSE SOCIETY was held at the Horticultural Club on Tuesday last, J. T. Jowitt, Esq., of The Old Weir, Hereford, in the chair, when the schedules for the shows at the Crystal Palace and Manchester were arranged, subject to further revision. Among the special prizes announced were a cup or piece of plate given by Rose-growers for sale as the chief prize in the class for twenty-four Roses, single trusses, amateurs; a cup by Edward Mawley, Esq., for the best six Roses, amateurs; a five-guinea cup by W. Robinson, Esq., for Roses sent out prior to 1850; and a cup by amateur exhibitors for the best thirty-six Roses, nurserymen.

AT the Annual Meeting of the Committee of the HORTICULTURAL CLUB, held at the Club House, Arundel Street, on Tuesday last, the following gentlemen were elected members of the Committee in lieu of three retiring members:—Colonel Peechell, the Rev. Geo. Henslow, and Mr. A. Wheeler; and the following gentlemen were elected members of the Club:—Edward Mawley, Addiscombe, Croydon; G. F. Morris, Leytonstone; and W. Prothero, jun., Leytonstone.

THE TRIALS AT CHISWICK this year comprise flowers, fruit, and vegetables; the flowers by a very large collection of Irises, the fruit by about 130 varieties of Strawberries in pots to test their relative merits for forcing, and the vegetables by Cabbages, of which a great number of reputed varieties are planted. The result of these trials will be both interesting and instructive.

MR. WITHERSPOON writes as follows from Chester-le-Street on the FRUIT PROSPECTS IN THE NORTH.—“It is already very clear that Pear blossom will be very sparse in this district. We shall soon, I am afraid, find to our regret that we have not done with last year's sunless summer yet. On taking a casual glance plenty of what might be taken for fruit buds are simply leaf buds. Beurré d'Amanlis is all right, while Beurré Superfin is barren, so is Durondeau and several others; while Williams' Bon Chrétien and Louise Bonne of Jersey are fairly set. Amongst Apples Lord Suffield is all right, as are Victoria and Transparent Gage Plums. The fine autumn did much in the way of ripening the wood, but I suspect an earlier sun was necessary for the perfecting the blossom buds.”

AS evidence of the MILDNESS OF THE SEASON we have received from Herefordshire a Gloire de Dijon Rose picked from a north aspect on the 22nd inst., the thermometer having recently been 62° in the shade.

A NEW ROCKERY is just about being completed at Chiswick, and forms an agreeable approach to the great viverny. It is composed chiefly of large rough stones and clinkers, and, common as those materials are, they have been arranged in a manner that renders the rugged pile attractive. The rockery has been formed by the garden operatives acting under the guidance of the superintendent, and due provision has been made for the well-doing of the collections of Alpine plants that are now being planted. The different genera are being grouped together as much as possible in aspects best suited to them. Such low-growing plants as Saxifragas, Primulas, Sedums, &c., will be seen to much better advantage on the rockery than in the level border of the garden. Already the collection of rock plants is extensive and choice. This rockery, which was so greatly required and has cost so little, will be a permanent source of interest in the gardens. A few Conifers and Yuccas are planted on the upper portions of the mounds. Already the effect is very good, and of course will improve yearly as the stones lose their “newness” and the plants increase in size and beauty.

MR. RICHARD NISBET, writing to us from Aswarby Park, Lincolnshire, states that he caught a fine specimen of the BRIMSTONE BUTTERFLY (*Gonepteryx Rhamni*) on the 21st inst., having all appearance of being newly hatched, being perfect in every respect. This is generally the first of the butterfly tribe to announce the coming summer. Mr. Nisbet has frequently caught them in February, but never so early as the above date; its favourite months being March and April. A second brood appears in August. The caterpillar feeds on the Buckthorn and berry-bearing Alder. This pretty insect is found as far north as Newcastle, rarely found in Scotland.

THE general unproductiveness, or perhaps unsoundness, of the English Potato crop of last year has had the natural

result of increasing the importation of FOREIGN POTATOES, the declared value of which during the last twelve months increased to £2,346,593 from £1,742,285 in 1876.

THE successful cultivation of PEARS ON THE CORDON SYSTEM at Holme Lacy, Hereford, which has recently been noticed, is confirmed by the weights of fruit of the following varieties:—Glou Morceau weighed 13½ ozs.; Beurré Bosc, 12½ ozs.; Beurré Superfin, 14 ozs.; Beurré Diel, 15 ozs.; Easter Beurré, 16 ozs.; Triomphe de Jodoigne, 14 ozs.; Duchesse d'Hiver, 18½ ozs.; Doyenné d'Alençon, 13½ ozs.; Zéphirin Grégoire, 11½ ozs.; Maréchal de Cour, 14 ozs.; Bergamotte Esperen, 11½ ozs.; Joséphine de Malines, 11 ozs.; and Van Mons, 15 ozs.

A CORRESPONDENT writing to us on the MILDNESS OF THE SEASON IN THE ISLE OF WIGHT, states that Geraniums, Calceolarias, Fuchsias, Stocks, and other summer-blooming plants are still flowering in his garden. Only 2° or 3° of frost have been registered, and only such very tender plants as Heliotropes have succumbed to the coldness of the weather.

THE German botanist, Regel, has discovered in the Himalayas a variety of WILD ONION, which he regards as the original source of our ordinary garden Onion. It is called *Allium cepa sylvestre*.

WE have received from Mr. Thomas Sheasby, The Gardens, Hare Hill, Macclesfield, some very fresh blooms of CHEYRANTHEMUMS. The blooms are not quite so large as they would have been in December, still they are more valuable now than they would have been at that time. Mr. Sheasby thinks it a great point to choose free-blooming varieties for late work. There are four varieties—viz., St. Michael, Jules de Largrègue, Mrs. Forsyth, and Golden Cedo Nulli. Those varieties in the neighbourhood of London faded some weeks ago.

HINTS ON GROWING VEGETABLES.—No. 2.

ROTATION OF CROPS.

JANUARY is pre-eminently a month of rest in gardening matters, and now, if ever, we should be able to make our plans for the coming year before busy April with its more active employments is upon us. Let us in the dull wet days and long evenings read up some of those interesting articles in last year's Journal, which perhaps we could not do more than glance at in the summer, and looking back at our garden book for the past year to see where we have failed, compare the two together and make notes for the coming year to provide against a like mishap.

And here let me strongly urge all who have not yet done so to keep a note-book. It need not be an elaborate one; a simple large shilling copy book with a stiff cover, which we can rule into columns, will answer capitally. The first column for the name of the crop and the variety we are growing; the second for the date of sowing; then, in the case of the Brassica tribe, Celery, Cucumbers, and such-like, let us note when we begin planting out, next the date we begin to gather, and again when we take up the crop. We must have a column, too, for the quantity of seed sown and of the produce obtained, for the circumstances under which the crop was planted, or the manures used; and lastly a column headed “Remarks,” to note what the cook said about us. A page should be reserved for special notes, such as the general character of the weather, the date of any permanent improvements, of planting fruit trees or housing the soil, for all these, though it may appear trifling to note them now, will prove useful “sometime and somewhere.” No one who has not tried this plan can imagine what a help it is towards preparing the next year's work. It reminds us when to sow; that this crop was too late or that too early planted, the year before; that one crop did well shaded, another was improved by using a different manure. “Work for the Week” in the current Journal is very good, and I should do badly without the record; but the work in my garden for the corresponding week of last year, if not so interesting, should prove still more useful to me in warnings and successes.

Another help which I even more strongly recommend to all who wish to make the most of their garden is to draw a plan of it each year. Take the trouble, once for all, to go round some fine day in early autumn and measure your quarters, and much simpler and easier you will find the work if these are square or oblong. From this measurement make a small plan with ruler and foot-measure, say one-fifth of an inch to the yard, and mark down according to scale the space and position of every crop. A series of such plans for previous years will

simplify that most important part of good gardening, the proper rotation of crops.

Now, if it be not already done, is the time to make all the arrangements for next spring, to draw a plan after the pattern of last year's, tentative indeed and liable to be affected by weather, but to be followed if possible during the coming season. Let us see where the various crops were placed last year and the year before. If possible let two, and certainly one year, intervene before repeating the same class of vegetables on the same plot. Of course I am aware that owing to the limited extent of most warm borders rotation cannot be as fully practised in that precious part of the garden as is desirable; but even there it should be followed as much as possible, and the early Potatoes, Peas, and Carrots should succeed each other in a three-years course. Some will point to crops of Potatoes grown in cottagers' gardens on the same ground year after year as an argument against rotation, but in most of such cases the crops gradually deteriorate, and practical experience is against it. The nature of the soil, too, so chemists tell us, is opposed to the practice, for the food of plants is chiefly derived from four elementary substances—carbon, nitrogen, oxygen, and hydrogen. The first they obtain partly from the soil, but principally from the carbonic acid in the atmosphere; hydrogen from the rain and dew which falls on the ground; oxygen and nitrogen from resolving ammonia, the product of decomposing animal and vegetable substances, into these two elements. But besides these gases they require also solid substances, and these they imbibe in a state of solution through their roots; such, for example, as potash, lime, phosphates, sulphates, and silicates. Whether the staple be clay, chalk, or sand, we shall find that in all soils the three are present in greater or less proportions, together with many of the phosphates and acids mentioned above. But these are, so to speak, under lock and key, and require that the soil or decomposed rock (for such it is) should be brought under the influence of rain, wind, and sun before they are dissolved and their riches become available for plant life.

Each kind of plant requires one or more of the salts thus held in solution in greater proportion than the rest. Cabbages, for example, require sulphur largely; cereals require both potash and phosphate of magnesia to perfect their seed. So that by continually growing the same crop on the same plot you gradually exhaust the soil of the available supply of the salt it feeds on, and each crop is worse than its predecessor; whereas careful rotation avoids the evil by giving time for the land exhausted of one set of salts to unlock a further supply by exposure to rain and air, and to receive a fresh importation from the manure applied, and at the same time enables you to do what is most important in kitchen gardens where the heaviest and most continual cropping is required, I mean to avoid fallows and to obtain a crop from another set of salts, and grow Carrots instead of Cauliflowers. Mechanically, too, as well as chemically, you can obtain greater production by rotation; for, suppose Cabbages to have been grown in succession on one plot, by sowing Carrots or other tap roots you get down to a fresh stratum, and a good crop is the result where failure had been the rule. Therefore, to apply theory to practice, let beds be interchanged, roots taking the place of Cabbages, Cabbages of Peas.

A root crop should always, if possible, follow one of the Brassica tribe, as the ground having been highly manured for the first crop will be sufficiently rich for the Carrots without requiring fresh manure, which would cause fingers-and-toes and such-like evils. Let Beet and Parsnips be sown where the Celery trenches were, so that they may have a deep rich soil. Pea rows should be arranged 2 or 3 yards apart and have Dwarf Kidney Beans or Turnips grown between them, where they will do far better in the shade than if exposed. Their positions should be reversed next year that each may come on fresh ground, and a plot should be chosen which has not lately been occupied by the Brassica tribe, so that that class may succeed the early Peas; autumn Cabbages should also follow the Onions. Be careful to keep a shady spot vacant for Lettuces and Radishes in the hot dog days, as their crispness then will entirely depend upon it. Celery we generally like to travel round the garden year by year, visiting all the poorer parts, as no crop is more enriching.

Whenever you require to have land well cleaned in preparation for a permanent crop, such as Asparagus or Strawberries (for I do not find the beds fail in two years as so many complain), plant it with Potatoes. They leave the soil friable and clean and free from slugs, which are generally too plentiful

where Cabbages have stood. Certain crops may be an exception to the migratory rule on account of the difficulty of eradicating them, such I mean as Jerusalem Artichokes and Horseradish.—A YORKSHIRE AMATEUR.

HOME-GROWN TUBEROSES.

"M. D." has pointed out that my note on the above subject was not sufficiently clear in the matter of removing the offsets. I will try to make my meaning plain.

The Tuberose shortly after flowering generally dies quite back, leaving nothing visible above ground excepting the top of the bulb. This period should not be hastened by removing the flower stem or withholding water while there are healthy leaves on it, but it should be allowed to die back naturally, and water should not be altogether withheld, even when there is no visible growth. I pot them at this time without disturbing the roots or any part of the plant and place them in a little warmth. They soon commence growing by forming several little bulbs on and near the top of the old one. If all were left of course they would grow weakly; one only is left, and it rapidly enlarges, having the roots of the old bulb to supply it; the rest are picked off with the finger and thumb, and may be potted and grown in the same way as little Amaryllises. I have succeeded best so far with the bulb which remains on the top of the old one. Probably the young bulbs would take two years to grow them to a flowering size, but I have kept no memoranda on this point.—WM. TAYLOR.

THE FIG AND ITS BLOSSOM.

A LITTLE more than a year ago Mr. William Taylor wrote as follows about Figs:—

"Did you ever see a Fig blossom?" asked a gentleman well learned in theological, archaeological, and most other logical matters. 'Oh, yes,' I replied, 'thousands.' As he was evidently interested in the subject and failed to find the Fig blossom himself, I supplied him with specimens and such scanty information as I was in possession of. He said he had looked in vain in Miller's 'Gardeners' Dictionary' and various other works for particulars and explanations on the subject. I hinted that it might not be understood in Miller's time. 'It was understood long before Miller's time,' said he, 'for the subject is mentioned in the Bible, and some opponents of the sacred book say that the prophet was wrong, as the Fig does not blossom at all; but,' continued he, 'it seems the prophet was right.'

"I have never gone very deeply into the subject, although it is intensely interesting; but to those of your readers who would like to explore for themselves and discover the hidden beauties of the Fig, I will give a few hints which may serve to put them on the right track. I do not know the number of blossoms an average-sized Fig tree bears to within a few thousands, but if anyone will take the trouble to count the number of seeds a ripe Fig contains he will arrive at a tolerably correct idea of the quantity of blossoms necessary to produce a perfect fruit, and the multiplication table will furnish the rest.

"When the fruit is about the size of a small bean cut one of the small fruit lengthwise through the centre, and the blossoms yet unexpanded may be seen very clearly by hundreds, each one mounted on a separate peduncle of considerable length. Well, if these are the blossoms how is fertilisation to take place where not a breath of air can reach? Examine the end of the fruit farthest from the stalk and a hollow will be seen, but at present it is securely covered by small imbricated leaf-like organs, which protect the tender parts till such time as they become perfectly formed, when the door is opened and air is freely admitted to the centre of the fruit. This, I believe, is for the purpose of fertilisation, which takes place when the fruit is grown perhaps to a third of its size. The young organs are then extremely tender; and if, from the weather being unfavourable or the organs themselves being imperfect, fertilisation does not take place, the fruit grows to a certain size, when it, as well as the perfect fruits, cease to swell perceptibly for a time (this, in the case of the perfect fruits, is when they are forming the seeds), and then, instead of starting afresh, turns yellow and falls off.

"The structure of the Fig at the time the blossom is coming to perfection is exceedingly beautiful, even when viewed through a common magnifying glass. A microscope would probably reveal beauties which I do not dream of."

Mr. Taylor was perfectly right in supposing that the microscope reveals much beauty in the structure of the Fig. The flowers are not only numerous but are singularly and chastely beautiful, as may be seen by the accompanying figures.

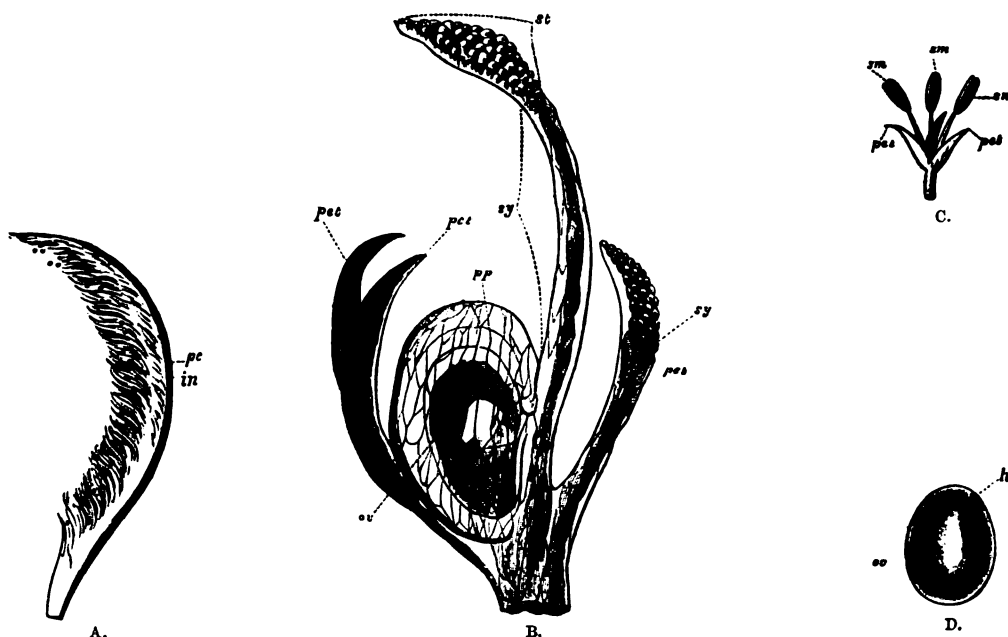
To the ordinary observer there is little in common between the Fig and the Nettle, yet both belong to the same family—Urticaceæ, and it may be incidentally mentioned that the Hemp, the Hop, the Mulberry, and the deadly Upas Tree are included in the same family—a singular association judging by the general appearance of the plants and their varied properties, yet on a closer examination the essential characters of their flowers are the same.

The Fig is one of the most important as well of the oldest of fruits. Its antiquity is proved from the fact that it is the first of all fruits mentioned in the Bible, in those passages relating to the creation and fall of man. Indeed the Fig tree is often mentioned, both in the Old and New Testament, in a manner to induce us to conclude that Figs formed a principal part of the food of the Syrian nation. When Abigail went to

meet David, to appease him for the affront given by Nabal her husband, she took with her, amongst other provisions, a present of two hundred cakes of Figs.

The fruit was much admired by the Romans, who brought it from the eastern countries they conquered, and had so increased the varieties in Italy by the commencement of the Christian era, that Pliny has furnished us with a description of twenty-nine sorts that were familiar to him. He says, "Figs are restorative, and the best food that can be taken by those who are brought low by long sickness and are on the recovery. They increase the strength of young people, preserve the elderly in better health, and make them look younger and with fewer wrinkles. They are so nutritive as to cause corpulency and strength: for this cause professed wrestlers and champions were in times past fed with Figs." This naturalist mentions the African Figs as being admired; but says, "It is not long since they began to grow Figs in Africa."

The "Hortus Kewensis" informs us that the Fig tree was planted in this country in 1548. Gerard says, in 1597, that



A. Section of a Fig showing the flowers on its inner surface.

B. Female flower of the Fig greatly magnified. *Pet*, petals, which are membranous, transparent, spirally arranged, the upper one, *sy*, being transformed into a stigma-like organ, and may be mistaken for the style which terminates the fruit. *sy*, style; *st*, stigma; *pp*, the membranous transparent pericarp; *ov*, the ovule.

C. The male flower. *pet*, petals; *sm*, the stamens.

D. The ripe seed. *h*, the hilum.

"the fruit of the Fig tree never cometh to maturity with us except the tree be planted under a hot wall." Parkinson also, in 1629, says that "if you plant it not against a brick wall it will not ripen so kindly;" but much must depend on the situation of the country. The same author says in his "Theatrum Botanicum," 1640, "the blew Figge is no doubt of the same operation with the white to all purposes, but the fruit cometh most to maturity with us, and is eaten with great pleasure with salt and pepper."

We make use of the term "fruit," because it is that by which it is best known; but what we call the fruit of the Fig is in reality not the fruit but the enlarged receptacle bearing the real fruit on its inner surface, the real fruit being those innumerable small seeds found on the inside of the Fig. In the East a practice has been followed from time immemorial of increasing the productions of the Fig by what is called "caprification," and it is maintained still. It consists in hanging branches of the wild Fig on those of the cultivated variety; the fruit of the wild plant contain a great number of eggs of an insect called *Cynips pascens*, the larvæ of which, as soon as they are hatched, crawl over the cultivated tree, pierce the fruit, or rather the receptacle, and, passing over the flowers in its interior, convey the pollen from the male to the female flowers, and thus hasten and secure fecundation.

The puncturing of Figs is still performed in those coun-

tries where they are largely grown, for as recently as 1871 a letter from a Naples correspondent appeared in this Journal, stating that "When the Fig has swollen to nearly its full size they take a pointed stick, like a toothpick, dip it in olive oil, and prick the Fig in the eye. This operation is performed on every fruit. Some say they are better flavoured without this operation, but I approve of it, for the unassisted Figs ripen later and become insipid from the rain that then falls."

"Seedlings of the edible Fig," says Mr. Burbidge in his book on the improvement and propagation of cultivated plants, "vary very much in size, flavour, form, and colour; and the numerous forms—upwards of a hundred—now grown in this country have been raised in French, Spanish, or Italian gardens. Doubtless some are merely cultural varieties, and any systematic course of intercrossing is next to impossible, unless, indeed, the fruit can be partially severed—i.e., slit open when the open orifice indicates the perfection of the flowers—and the foreign pollen introduced, after which the fruit might be held together by an elastic band until the margins united again; or it might be possible to insert the point of a fine brush or feather, moistened with honey or nectar and charged with pollen. The variety of fruits obtained when seeds of imported Figs are sown seems to point to hybridisation having previously been effected at some time or other, unless, indeed,

we can ascribe this seminal variation to a long course of cultivation."

SPARMANNIA AFRICANA.

WHY is it that we so seldom meet with or see mention made of this plant? I do not find it in any catalogue or work on

plants with the exception of the "Cottage Gardener's Dictionary." In this useful work it is described as being "a fine old evergreen greenhouse shrub. Cuttings of young shoots in April; loam and a little peat" (the soil recommended). "Winter temperature 38° to 48°. Nat. ord., Lindenblooms."

A fine old shrub it undoubtedly is, and when grown for winter work I know of nothing more useful and showy. Its



Fig. 16.—SPARMANNIA AFRICANA.

only drawback is its comparative uselessness for cutting for vases, &c., as when cut the flowers close in a few hours. For the decoration of conservatories, &c., it is extremely useful, it being not only evergreen but perpetual-flowering. Fine bushes (and this we find much the best shape in which to grow it) can be had in 12-inch pots, and we have in a small tub a plant fully 6 feet in diameter and 9 feet high literally one mass of

flowers. The Sparmannia flowers but little in a young state unless extra sturdy growth is obtained, nor will it be very attractive planted and crowded as I have seen it among a lot of conservatory plants. It will flower when so treated, but seldom till the shoots are too long to be tolerated.

Cuttings with heels attached, taken from the ripened wood, strike readily in the spring and can soon be grown into large

plants. Avoid crowding; pinch back and pot on till the end of June or early in July. A good head being obtained, discontinue pinching and potting, and turn out into an open and sunny spot. The temperature of a greenhouse is the most suitable during May and June.

Old plants when no longer wanted in bloom, which with us is at the end of March, are ripened by gradually withholding water, are cut back to within a few eyes of the old wood, and placed in a gentle heat till they break; they are then shaken out of the old soil and repotted, employing about the same sized pot or tub as they were formerly in. This is rather severe work, as the ball is one mass of roots, but when placed in heat they soon recover from the effects of their rough treatment. The soil used is composed principally of turfy loam with an addition of a little peat, leaf soil, sand, and broken crocks. When re-established they are gradually hardened off, and in June are placed in a sunny position outdoors. Early in September they are taken into their blooming quarters and commence flowering immediately. From that time an occasional dose of weak liquid manure is administered. They flower freely in a greenhouse temperature 38° to 48°, but 48° to 58° is far the best, the blooms being finer and of a purer white; the foliage has also a better colour for the extra heat.

The flowers are produced in great profusion in trusses of about twenty-four buds, which keep up a long succession of bloom. The individual flowers measure 2½ inches in diameter. The calyx consists of four sepals, which are narrow, and white in colour. The petals of the corolla are white with a slight circle of maroon at the base, are also four in number, but are longer and broader than the sepals between which they are disposed. From the base of the ovary and pistil a number of maroon-coloured stamens, the anthers of which are heavily laden with golden pollen, fringed with a ray of curiously shaped golden threads, spring in four prominent groups opposite the sepals. The whole forms an extremely pretty flower.

Next season I hope to be able to try the *Sparmannia* in the subtropical garden.—W. IGGULDEN.

[The engraving is from sprays sent by Mr. Iggulden; they were extremely well grown, one of the trusses having forty flowers and unopened buds.—EDS.]

PARAFFIN STOVE VERSUS FLUES.

DURING the last two winters I abandoned flues and hot-water pipes in a small greenhouse 12 feet by 10 and substituted a paraffin stove with great success. I wintered *Azaleas*, *Myrtles*, *Cytisuses*, *Amaryllises*, *Geraniums*, bedding-out plants, delicate Ferns, &c. I can raise the temperature 10° in an hour, and my stove, a duplex Silber, burns for twenty hours without refilling or trimming.

I have great difficulty here in procuring stable manure for frames or pits, and my note is to ask if any of your subscribers have ever heated their frames with paraffin lamps. If they will answer in a greenhouse, one would argue that on a lesser scale they would do well and be a great boon to small gardeners. The expense of a fire and pipes for one frame is not to be thought of, and as I do not want to run the risk of losing all my plants in my solitary frame with two lights 8 by 6, I should like to have the experience of others to guide me.—E. H.

RAINFALL IN 1877.

YOUR correspondent who, writing from Morpeth, calls a rainfall of 45 inches a downpour, "disastrous alike to both field and garden produce," will probably be surprised to see that the fall in his neighbourhood is exceeded at sixteen out of the fifty-three gardens mentioned in the following list, and more than doubled at one of them. I ought, perhaps, to say why I have anticipated my own publication by compiling this list and forwarding it to you. There are several reasons, but perhaps the mention of three will suffice.

1. I venture to think that a gardener who has paid a little attention to the subject of rainfall has practical advantages over one who has not, and that is especially the case if he changes from one locality to another of which the rainfall is very different, and if a record of rainfall has been kept at the gardens to which he goes his advantage is very great.

2. I think that it will be interesting to all the contributors to the table, and to most of your readers, to observe the widely different fall at the various gardens, and I know that such information is useful in many ways.

3. I am aware that the table is far from complete even for

England and Wales, but I must not ask too much space, and besides that, there are many returns which have not yet been sent to me. I hope that the appearance of the table may remind those who have been accustomed to favour me with returns that the year 1877 is already a thing of the past, and that the sooner their returns are sent in the better. I hope also that those who have kept regular records and not sent copies to me will do so; and lastly, I hope that some who have not done so will resolve upon so doing. I promise them any help in my power.—G. J. SYMONS, 62, *Camden Square, London, N. W.*

RAINFALL IN 1877 AT SOME OF THE PRINCIPAL COUNTRY SEATS IN ENGLAND AND WALES.

Station and County.	Observer.	Total Depth.	Days on which 0.01 in. or more fell.
		Inches.	
Althorp, Northampton.....	Mr. Jakeman ..	29.08	184
Arlington Court, Barnstaple, Devon.....	" Carter	63.65	241
Audley End, Essex.....	" Bryan	37.35	219
Ayston Hall, Rutland.....	" Hull.....	27.71	—
Babworth, Retford, Notts.....	" Douglas.....	29.74	164
Balcombe Place, Sussex.....	" Comber	40.90	178
Barton Hall, Bury St. Edmunds.....	" Allan	29.21	224
Bostock Hall, Middlewich, Cheshire..	" Statham.....	39.79	172
Botanic Gardens, Birmingham.....	" Latham	30.49	197
Brathay Hall, Ambleside, Westmrlnd.	" Stalker	96.56	240
Burley-on-the-Hill, Rutland.....	" Temple	28.75	194
Carclew, Falmouth, Cornwall.....	" Palmer	56.62	203
Cardiff Castle, Glamorganshire.....	" Pettigrew.....	50.80	221
Cholmondeley Castle, Cheshire.....	" Malcolm.....	45.09	224
Compton Bassett, Calne, Wilts.....	" Allen	38.49	190
Crickeat St. Thomas, Chard, Dorset..	" Davies	48.96	235
Dalby Hall, Melton Mowbray.....	" Jones	26.58	185
Denford Park, Hungerford, Berks....	" Peachey.....	37.66	196
Easton Neston, Towcester.....	" Clarke	28.89	178
Eggesford, North Devon.....	" Spreadbury ..	44.80	229
Endleigh, Milton Abbot, Devon.....	" Corneliuss.....	67.92	—
Englefield, Reading.....	" Coombes.....	33.45	173
Eridge Castle, Tunbridge Wells.....	" Rust.....	44.15	196
Ganton Hall, Scarborough.....	" Greasley.....	32.85	183
Glanusk Park, Crickhowell, Brecon..	" Ireland.....	51.18	—
Gorhambury, St. Albans.....	" Thompson.....	36.71	165
Holker Gardens, Cartmel.....	" Fox.....	58.23	237
Howick Hall, Alnwick, Northmrlnd..	" Inglis	38.32	219
Huntsam Court, Bampton, Devon....	" Payne	67.73	206
Lowther Castle, Penrith.....	" Shand.....	48.08	169
Lupton, Brixham, Devon.....	" Gibson.....	51.29	162
Meldon Park, Morpeth, Northmrlnd..	" Finlay	44.83	219
Moor Hall, Harlow, Essex.....	" Huntley.....	30.46	200
Pampesford Hall, Cambridge.....	" Morley.....	27.92	220
Patsell, Wolverhampton.....	" Dell.....	29.24	194
Plas Power, Wrexham, Denbigh.....	" Clark.....	40.60	190
Preston Hall, Aylesford, Kent.....	" Bradley.....	33.76	160
Raby Castle, Darlington, Durham....	" Westcott.....	87.67	—
Rhug, Corwen, Merioneth.....	" Bennett.....	49.85	206
Ribston Hall, Wetherby, Yorkshire..	" Jones	35.94	145
Rockingham Castle, Northampton...	" Brown.....	28.18	171
Saltram, Plymouth.....	" Snow.....	45.41	—
Sandbeck Park, Rotherham, Yorks...	" Summers.....	31.50	163
Seaham Hall, Durham.....	" Draper.....	32.63	—
Southend, Darlington, Durham.....	" Black.....	32.97	212
Stackpole Court, Pembroke.....	" Selator.....	55.46	157
Staplehurst Place, Kent.....	" Wilson.....	39.33	201
Strathfieldsaye, Hants.....	" Bell.....	28.66	139
Thelby Park, Redruth, Cornwall.....	" Mill.....	46.61	—
Welford Park, Newbury, Berks.....	" Ross.....	37.30	213
Willesley, Matlock, Derby.....	" Tissington.....	44.45	—
Wrottesley Hall, Wolverhampton....	" Simpson.....	29.73	193
Wynnstay, Ruabon, Denbigh.....	" Middleton.....	41.36	226

TRANSPLANTING BROCCOLI.

AS I do not know whether the transplanting of Broccoli in autumn is general or not, I append the following, hoping that some of your more practical readers may give their experience upon the matter.

We had a piece of ground which we intended to renovate, but which was occupied with Broccoli that were planted about the middle of June, so that by the 1st of November the plants had almost attained their full size. We then had them lifted and planted in a border sheltered by a high wall. As other work was pressing we had not time to be over-careful about the operation, consequently many of the plants had not large balls. However, the plants do not seem to have been much disturbed and look nearly as healthy as another plot that was allowed to remain. In my opinion we shall have as good heads from those we lifted as from those that were undisturbed. We have had very mild weather since, which no doubt was greatly in their favour and perhaps may account for their freshness. There are some amongst those which were not lifted almost ready for cutting but none as yet among

the transplanted ones. The variety is Shearer's Late White, but I think any of the other varieties would bear the same treatment.—JAMES BOYD, *Callander Gardens*.

RAISING FERNS FROM SPORES.

HAVING carefully prepared the soil, and then roasted or boiled it in order to destroy all animal and vegetable life, it is placed in a Wardian case, or pan having a glass cover. The soil if roasted will require to be wetted with boiled or distilled water in order to be of a proper moistness. It is then pressed until there is a smooth surface, and after this sown with spores, which should not be covered with soil. All watering must be done from below—i.e., the pan placed in a saucer full of water, immersed about one-third of its depth; and this must either be boiled or distilled water, to prevent a confervoid growth on the surface, which would kill the young Fern germs. On the surface becoming green with growing Ferns transplant with the point of a knife into much larger pans, and this can be best done by making small indents in the surface, and placing in them small patches of the spores and lightly pressing each with a finger, taking care to wipe the finger dry after every pressure, or the young plants will cling to it. To procure new varieties spores are scraped off portions of a number of curious fronds or parts of fronds of the same species, and sown thickly together; and the reason for sowing thickly is that the germinal fronds by being pressed closely together by each other become more or less vertical, a position thought to be more easily fertilised by the male organs falling more readily into the female cells than when in a more or less horizontal position, as they would be if sown very thinly. Nature does to some extent provide for this by curling the thickened edges; yet under these circumstances, with thin sowing, the male spiral is more likely to be one from the same individual, and would therefore more probably produce a form identical with the parent germ frond; whereas, if the spores of many forms be sown together the chances seem to be much more in favour of the fertilisation by another variety being accomplished. After gathering the fronds for spores it is better to place them in drying papers for a day or two, and then scrape off the spores and sow immediately. Freshly gathered spores germinate much more quickly than those that have been kept for a time.—E. J. LOWE (in *Midland Naturalist*).

OUR BORDER FLOWERS—WOLF'S-BANE.

To have in cultivation the enumerated species of this family we should require a space of no small dimensions, for their names are legion, and many of them bear a great similarity to each other. They are a race of plants in all probability that has received as little attention as any in cultivation. Common we admit they are, but that does not detract from their beauty, for there is something about many of them that cannot fail to attract attention. Without saying all that might be said about their beautiful as well as their dangerous properties, for they are in possession of both, I may say that Monk's-hood—or, as it is sometimes vulgarly called, Skullcap, Devil's-cap, and Old-wife's-cap-and-pin—(*Aconitum Napellus*) is possessed of very poisonous properties, alike dangerous to man and beast. Linnaeus says the ancients, who were acquainted with chemical poisons regarded the Aconites as the most violent of all poisons. Wherever those plants are introduced they ought to be strongly marked. Dodonæus gives us an instance of five persons at Antwerp who ate the root in mistake and all died. Though the plant is thus invested with terror it can be subdued so as to become a powerful remedy in the hands of a skilful practitioner in some of the troublesome disorders of the human frame.

The plants are well adapted for large borders, shrubberies, shady walks, and open spaces among trees, but they should not be planted where cattle have access to them. When once established they require no further care, except that the taller kinds require staking when in open places to keep them from being broken by the wind. They are not particular as to soil or situation. They are readily increased by seed sown in spring either in pots or in a sheltered border in a sunny situation, or by division in the autumn or spring. They are a widely distributed family. To make a selection from such a host is no easy task. *Aconitum versicolor*, with its synonymes bicolour and variegatum, stands pre-eminent, and I think is the most attractive, being really a fine border flower. *A. paniculatum* is a noble object when in good trim. *A. pyramidale* is one of the best of the tribe. *A. lycocotum*, of a creamy

white colour, is quite an object of beauty in autumn. *A. ferox*, *A. autumnale*, *A. speciosum*, *A. Napellus*, and *A. N. alba* are all desirable border plants.—VERITAS.

WORK FOR THE WEEK.

KITCHEN GARDEN.

PLANT Jerusalem Artichokes in well-manured ground in an open situation but sheltered from winds. Light soil is most suitable. Plant 4 inches deep in rows 2 feet 6 inches asunder, selecting medium-sized tubers, placing them 15 inches apart. Fresh plantations of Rhubarb may now be made. The ground should be well trenched and very liberally manured, selecting healthy crowns with good roots, dividing the old roots into several parts. Plant 8 feet apart every way if the roots after a year's growth are to be taken up for forcing, 4 feet for those intended to remain three years, whilst the strong growers, as Monarch and Victoria, require 5 or 6 feet. Johnston's St. Martin is the best for forcing and early use. Light soil moderately moist affords the finest Rhubarb. Seakale that has been forced and is hardened off by having been placed in sand in a cool place for a few days should be planted. We plant in rows 18 inches apart and a foot apart in the rows. We also raise seedlings every year, selecting the strongest for forcing, planting out the smaller in rows 15 inches apart with the roots 12 inches apart, removing the bud from each before planting. These and the forced crowns ripen earlier, and are available for forcing sooner than plants raised from division of the roots or seedlings. Though we force Seakale and Rhubarb in a Mushroom house, keeping up a supply by introductions at fortnightly intervals, our principal spring supply is had by placing pots over the stools in the open ground and covering them with long litter so as to exclude air, but not so thickly as to heat; by covering a portion about twice as deeply as the other a succession is had. Chimney pots are employed for a portion of the outdoor Rhubarb, surrounding and covering them with any stale litter, or if wanted to come in quickly hot dung and tree leaves, so as to raise a gentle heat. Continue to dig or trench ground as the crops are cleared there being no doubt of the beneficial effect of the atmosphere upon soils with loose surfaces.

HARDY FRUIT GARDEN.

If the present mild weather continue no time should be lost in concluding the pruning of Gooseberry and Currant bushes which may have been delayed in hope of saving some buds from the birds. In pruning we contrive to have the centre of the trees open, with the branches 9 inches to a foot apart, cutting the sprays or young shoots to from half to three-quarters of an inch of their base, and shortening the end shoots and those retained for new branches about one-third their length. If extension be not wanted the shoots are cut back to two or three eyes. Black Currants require to have the wood thinned, cutting out the old bare branches to their base, which encourages vigorous young shoots upon which the finest fruit is produced. Raspberries should be finished pruning, leaving four to six of the stoutest canes to each stool, securing them to stakes 4 to 5 feet high, shortening the canes to that length. We also form a series of arches by bringing half the canes of each stool together, tying them together with tarred string, having the arches about 8 feet 6 inches high at the crown, merely removing the points of the canes. A stake 4 feet above the ground in the centre of the arches serves to make them secure against winds. By this plan the young canes have free liberty to grow without interfering with those bearing fruit. A liberal dressing of well-decayed manure should be given, pointing it in for a short distance around the plants, but in the open spaces it should be dug-in more deeply, yet not disturbing the roots. For preventing bullfinches taking the buds of Gooseberries there is no remedy so good as the gun, but the buds are made distasteful to the birds by sprinkling the bushes with quassia water, half a pound of chips boiled a quarter of an hour in two gallons of water; when cool strain off, adding six gallons of water, and whilst the trees are wet dust thoroughly with quicklime. It may be applied also to bush or pyramid Plum trees, and is good against insects as well as birds.

FRUIT HOUSES.

Pines.—Some of the suckers which were not strong enough for placing in fruiting pots last autumn may now be drawn upon, selecting the strongest and best rooted, shifting them from the 7 or 8-inch pots to 10-inch for Queens and 11 and 12-inch for those of stronger habit. Good sound medium-textured turf loam with the turf well reduced is the most suitable compost. It should be broken up tolerably small and had under cover some time to become warmed and in a fit state for use as to dryness. Place a layer of fibre on the crocks, and sprinkle it with soot to keep worms at bay. Keep the plants well down in the pots, and make the soil firm about the roots, and with a bottom heat of 85° they will speedily be established in the fresh compost. 60° to 65° will be a sufficiently high night temperature for these plants as well as for those potted last autumn, with the usual rise of 10° to 15° by sun heat. Examine the heat in the beds where plants are starting into fruit, seeing that it does not exceed 90° or 95° at the

pot bottoms; if the latter temperature be indicated the pots must be partially withdrawn until the heat has subsided.

Figs.—Those in pots started early in the month will be showing their young shoots. To keep them stiff and short-jointed afford them a light position and admit air freely. Weak liquid manure may be given when the first leaves are full-sized. We have grown Figs in pots very satisfactorily upon the back flue in a Pine stove, the pots being placed on bricks to prevent overheating. They were introduced early in February; the temperature was never less than 60° rising to 80° and 85° by day. Weak liquid manure was given liberally. Figs in pots do equally well placed on the hot-water pipes in a vinery if the roof be not densely crowded with Vine foliage, as Figs to do well require plenty of light and heat. In the Fig house, early fruit being desired, the trees may now be started, syringing them twice a-day unless very dull, when once a-day is sufficient, maintaining a night temperature of 55° to 50°, and 70° to 75° by day from sun heat.

Strauberrries in Pots.—The earliest plants will be throwing up the trusses of flowers, and should be duly supplied with water, air being given on every favourable occasion; indeed, until the fruit has set and is swelling freely every opportunity should be taken to afford ventilation. Plants this year show a disposition to make a quantity of leaves before the flower scapes appear above the crown, which is usually due to undue excitement in the early stages of growth, though it may be owing to the unfavourableness of the late summer and autumn for ripening the crowns. This points to the advisability of bringing the plants on very gradually, employing very little fire heat in the case of newly-started plants, and no more of it than is necessary to induce steady progress until the fruit is set and swelling. Keep the atmosphere rather dry when the flowers have expanded, and run a bunch of feathers, or the hand, over the flowers to distribute the pollen more equally and prevent if possible deformed fruit. Introduce batches of plants to vineries or Peach houses for succession, and if the plants have been started in bottom heat to promote activity at the roots see that the pots are not too suddenly withdrawn from the fermenting material; if on inverting the pots we find the roots healthy and active among the drainage, bottom heat for starting the plants is not required. Plants in frames to be well ventilated, and if dry to have a good watering.

PLANT HOUSES.

Greenhouse.—Fuchsias that were dried off in the autumn should now be pruned, cutting them well back. Placed in a gentle heat they will soon break, and when they have shoots an inch long repot. They will flower earlier than the plants from cuttings struck last year. Another lot of the old plants may be held back to succeed those first started, which will afford a succession, they too flowering before the young plants. Camellias in pots should be well supplied with water when in flower, and if additional pot room be required it must be given before new growth is made. In potting merely remove the old effete soil from the surface and from among the roots, draining efficiently, and firming the soil well, or the water will run through the new material without wetting the ball. We use light turfy loam pared off very thinly (an inch) three parts, sandy peat a part, and a sixth of old cow dung. Remove the loose surface soil down to the roots of any plants that do not require to be potted, and top-dress them with light fibrous loam and cow dung not less than a year old in equal parts, and make firm. The leaves on both surfaces should be sponged to remove any dirt or insects. Introduce from frames *Primula cortusoides amena* vars., repotting them if not already done; also *P. denticulata*, *P. nivalis*, and others of the alpine species, which are quite charming. They require light airy positions, and must not be allowed to become dry. *Primulas*, *Cinerarias*, and *Cyclamens* throwing up bloom will be much benefited by the application of weak liquid manure. *Liliums*, *Tritonias*, &c., which have been kept under stages or plunged over the pots should be placed in the light before they have made much growth, or they will be drawn up weakly. If a few pots of *Lilium auratum* and *L. longiflorum* are introduced to gentle heat they will come in early and be very acceptable for this structure or the conservatory. *Cytisuses*, *Acacias*, and *Eriostemons* keep well supplied with water, and any Heaths pinched for pot room, especially those commencing to grow, should be potted. It is much better done early than late, as the plants have an opportunity of becoming established in the fresh soil before the sun becomes powerful, and will flower much stronger than plants with the roots in a cramped starved state. The fast growers require more pot room than the close-growing hardwooded varieties. Pot very firmly, draining thoroughly, watering carefully for a day or two before potting, so as to have the soil in a proper state.

Conservatory.—*Passifloras* should now be cut in pretty closely. They break freely if cut back to an eye or two of the old wood, often from the stem. The shoots resulting should be thinned, so as not to allow too much crowding, and with thinning and regulating occasionally they will commence flowering in June and continue to the end of the season. *Tacsonias* to have the wood thinned-out, cutting away the old shoots which have flowered, training young shoots in their place. *Habrothamnus fascicularis* and others are fine ornaments for walls, pillars, or roofs. The

roots of these and most climbers in conservatories being confined to narrow limits should have copious supplies of water and liquid manure. A good supply of flowering plants ought to be kept up by introductions of forced plants, such as *Azaleas*, *Deutzias*, double *Peaches*, *Spiraeas*, *Lily of the Valley*, bulbs, and other forced plants, with *Cyclamens*, *Primulas*, *Genistas*, *Epacris*, *Acacias*, *Correas*, &c., that may be draughted from the other plant structures. See that the foliage of the permanent plants is clean and free from insects, remove decayed leaves and flowers, and let neatness and order be scrupulously attended to at all times.

Forcing Department.—Introduce another batch of *Lilacs*, *Prunuses*, *Deutzias*, *Guelder Roses*, *Sweet Briars*, the fragrance of which is highly esteemed in the conservatory, *Ghent Azaleas*, *Rhododendrons*, *Kalmias*, *Dielytras*, and bulbs. A few plants of *Indian Azaleas* should be introduced, selecting those with the flower buds in the forwardest condition, also a good batch of *Roses*, particularly the *Tea-scented*, and some pots of *Musk*. Mulch the surface of the pots of the *Roses* with rich compost, and water with weak liquid manure. Temperature 60° to 55° at night, 65° by day, with a rise from sun heat to 75°. Keep up a good moisture by sprinkling every available surface twice, and in bright weather three times a-day. Another batch of *Amaryllises* to be started, than which few plants are more useful, not forgetting, as is too often done, *Jacobaea Lily*. Our plants of *Hippeastrum pardinum* which flowered in September are now sending up flower scapes strongly. We keep the plants on shelves near the glass, and never allow them to want for water, feeding them with liquid manure when in growth. *Tuberoes* should be potted, employing 6 or 7-inch pots according to the size of the roots, removing the suckers and side eyes, covering the root all but its point with soil, which may be turfy loam with a fourth of well-decayed manure. Plunge the pots in bottom heat (75° to 85°), not watering until growth takes place, keeping them in the hot-bed until they show the flower stems, when gradually withdraw, feeding the plants with liquid manure; 60° should be a minimum temperature, rising to 75° or more from sun heat. We prefer the American roots, *Pearl* being a stout dwarf variety, with pure white double flowers, and very sweet.

FLORISTS' FLOWERS.

Auriculas.—The month of January is a period at which the *Auricula* does not look so well as at other times. All its summer leaves have gone; week after week the cultivator has gently removed them as they have withered away, leaving only a stout heart from whence by-and-by will be developed in a marvellous way the flowering plant with its fine truss of bloom. There is no leaf-action at this period, but the grower will go carefully through his plants, occasionally brushing-off any green fly, looking-out for any slugs or vermin that may have intruded themselves, and preparing for the important work of top-dressing. The surface of the soil should be loosened with a plant stick, and then shaken out to the depth of a couple of inches or more, the roots being disturbed as little as possible, and the space being filled-up with fresh compost. About the character of this there is a difference of practice. Some growers use pure well-decayed sheep's dung, others simple loam, and others a mixture of loam and manure with a little sharp sand: the latter is perhaps the best. The whole collection having been gone through, and any good offsets taken off, the pots are replaced, a gentle watering is given, and in a very short time the effects of this treatment assisted by the returning spring will be very manifest, and pleasurable anticipations of future beauty will cheer the cultivator.

Carnations and Picotees.—There is not much to be done at this season. Air should be given at every favourable opportunity, and the plants and pots kept perfectly clean. The surface should be gently stirred to prevent the growth of moss; in fact, cleanliness is the one point to be aimed at. Those who grow their collections in pots will now see that these are all clean and sweet, and will have their compost under cover. The best mixture for their growth is one of three parts loam and one part of old manure. Some growers use leaf soil and also road grit, but as a rule the simpler the compost the better. It should all be carefully passed through the hand so that any wireworms may be detected and destroyed, for they will otherwise very soon destroy the plants, and in the fresh loam they are apt to be present. Those who grow their collections in beds will look through them to see that neither worms nor frosts have worked them out of their proper position. In wet days stakes may be looked over, painted, and made ready, and labels prepared, so that when the really busy time comes there may be no need of preparation.

TRADE CATALOGUES RECEIVED.

Galloway & Graham (late Robertson & Galloway), 138, Queen Street, Glasgow.—*Descriptive Seed Catalogue and List of Choice Gladioli.*

W. Tait & Co., 45, Capel Street, Dublin.—*Spring Catalogue of Vegetable and Flower Seeds, Potatoes, Implements, &c.*

Stuart, Mein, & Allan, Kelso.—*General Catalogue of Forest and Ornamental Trees and Shrubs, Roses, and Select Gladioli.*

George Cooper & Co., Chiswick Seed Warehouse, Derby.—*Catalogue of Kitchen Garden, Agricultural, and Flower Seeds.*

W. W. Johnson & Son, 5, Bridge Street, Boston, Lincolnshire.—*General Catalogue of Vegetable, Flower, and Farm Seeds.*

W. Hean & Quick, Barnstable.—*Illustrated Catalogue of Garden and Agricultural Seeds.*

W. P. Laird & Sinclair, Dundee.—*Catalogue of Vegetable and Flower Seeds, Potatoes, and Garden Requisites.*

Ormsby & Renwick, Melrose.—*Catalogue of Vegetable, Flower, and Agricultural Seeds, Implements, &c.*

F. Gallop, 80, Western Road, Brighton.—*Catalogue of Vegetable, Flower, and Agricultural Seeds.*

Bruant, Boulevard Saint Cyprien, & Poitiers, France.—*List of New Pelargoniums, Petunias, Penstemons, Verbenas, &c.*

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense. Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

ROSE SHOWING (*A Lover of Rose Shows*).—We are quite sure that neither you nor "WYLD SAVAGE" intended to write caustically, so the subject had better rest. Lord Melbourne's suggestion was a wise one, "Cannot we let it alone?"

CYCLAMEN FLOWER (*Mrs. C. W.*).—It was pressed flat; the petals always are reflexed. The natural colour of the *Myosotis* flower is pink, and sports from it, such as the blue, will return occasionally to the natural colour.

MRS. PINCE VINES FAILING (*J. Mark*).—It is the shade of the Black Hamburgh Vines in front of the Mrs. Pince Vines on the back wall that has caused them to fail. They may be removed at any time, and at their age no satisfactory results would follow planting them in another position. It will do no harm but good to the Hamburghs to remove the Vines from the back wall if you root them out by taking a trench out 3 feet wide all along the back the depth of the border, and fill up the opening afterwards with a mixture of good loam, decayed manure, and ground bones. We have watered Vines with weak manure water after the fruit had commenced colouring without injuring the flavour, but when the fruit is ripe pure water only should be applied to the roots.

ASPLENIUM (*Fern-Grower*).—The two species you name are not identical.

NERTEA (*T. S. C.*).—The emphasis is on the first syllable. It belongs to the natural order Cinchonaceae, and was named in honour of a German. Refer to the dictionary for Catalpa.

SOIL INFESTED BY GRUBS (*G. S.*).—Apply salt and guano at the rate of twenty bushels of salt and 5 cwt. of guano per acre.

SELECT PELARGONIUMS FOR EXHIBITION (*Devonshire Subscriber*).—Beauty of Oxtou, Queen Victoria, Album plenum, Troubadour, Othello, May Day, Highland Lassie, Achievement, Jubilee, Ruth, Maid of Honour, and Robin Hood. Six fancy Pelargoniums—Lord of the Isles, Lady Dorothy Neville, Mrs. Mendel, Acme, Fanny Gair, and Vivandière.

SELECT HERBACEOUS PHLOXES (*Idem*).—Six early-flowering—Waverley, Mrs. Dennis, The Queen, Maive Queen, Purple Emperor, Mdlle. Bertha, and Rendaler. Six late-flowering—Mrs. R. Grieve, La Avenir, A. F. Barron, Queen of the Whites, Mrs. W. Miller, and Lierwall.

CUCUMBER ROOTS DISEASED (*T. H.*).—To attempt applying a remedy to Cucumber roots badly affected with excrescences is to waste time needlessly. Raise fresh plants from seed, not from cuttings of the affected plants, which destroy. Remove the whole of the soil, give every part of the interior walls a thorough dressing with hot lime wash, scour the whole of the woodwork, close house, and fill it with fumes of sulphur; then put in some fresh sweet soil and your fresh plants will probably prove quite healthy. We cannot tell if the soil sent contains any noxious insect, but we advise the exercise of due caution in the subsequent selection of soil.

MEALY BUG ON CUCUMBER PLANTS (*Idem*).—The same treatment must be applied in this case as in that of the plants with diseased roots.

PROPAGATION OF MENTHA PULEGIUM (*John Brown*).—Your plants upon which you have seen no leaves may not be dead. Place them in gentle heat and the matter will soon be decided. If they put forth growth make cuttings, which root readily in a lively temperature and soon afford other cuttings. They may also be increased by division of the roots. Although this plant is hardy it suffers from excessive wet during winter and early spring.

PRUNING YOUNG PEACH TREES (*A Constant Reader*).—If the growth is vigorous it should only be slightly shortened, but if weakly severe pruning must be practised. We gather from your note that your trees are vigorous, and therefore would not reduce the shoots of 3 feet long which you mention more than 3 or 4 inches, thinning it out to allow sufficient space for new growth, pruning the shorter lateral shoots slightly, and thinning them freely. Let the lower leading shoots be left considerably longer than those near the centre of the tree in order to secure an equal distribution of vigour.

ARBUTUS FRUITING (*A Lady*).—*Arbutus Unedo* is a native of Ireland, and under favourable circumstances may be seen in the early winter months laden with pendant clusters of scarlet berries. An unfavourable autumn or premature cold will so much affect the flowers as to destroy all chances of fruit. Yours is the true kind, and the invariable barrenness of all your shrubs is doubtless owing to an unfavourable position. Transplant one or two into sheltered sunny nooks and you will probably be rewarded by obtaining some of the fruit which has so justly excited your admiration.

GLASS RANGE AGAINST A HOUSE (*A Subscriber for Twenty Years*).—As you wish to see the flowers from the windows, the height of these must in

some measure be your guide as to the height of the glass houses, upon which, too, the height of the house itself should exercise some influence. Why should you make the central portion lower for the bedding plants when they can be brought as close to the glass as you like by means of staging? Rather would we see a more important aspect imparted to the centre by means of an octagonal bay projecting from the front of the range in harmony with but somewhat longer than the octagons at the ends, which we much like, and we think that for the portions between the octagons a half-span would be much better than the more formal lean-to form.

HEATING GREENHOUSE AND PIT—TRANSPLANTING VINE (*W. E. B.*).—1. According to your arrangements there will not be sufficient heat in your frame to grow winter Cucumbers. To do this the pipe would require to go along both back and front, and the same quantity of piping would be required along the bottom of the bed to supply bottom heat. 2. There will be enough piping in the greenhouse to keep up a minimum heat of 52°. It will be much better for the plants to have the boiler outside the house, but close to the end of it. The boiler you contemplate putting in will meet your arrangement very well, but you would find the heat act much better if the pipes were taken along the front of the house than the back of it. 3. If lifted and transplanted very carefully your Vine may be moved without injury, providing it has not started into growth before that time. A border both outside and inside would be an advantage.

CULTURE OF VEGETABLES (*J. Lansell*).—There are quite enough of books published to meet the demand.

TEA ROSE CHESHUNT HYBRID (*Chimber*).—Cheshunt Hybrid is suitable for a wall, is very vigorous, bears its large flowers abundantly, and is quite worthy of a south-west aspect.

USE OF SHADED BORDERS (*D. C.*).—Your borders outside the garden wall facing the north and east and much shaded are precisely such as gardeners value for securing a late crop of Strawberries. Black Currants would also answer well in such a position, as would Violets and Lily of the Valley.

ASPHALTING BOTTOM OF A VINE BORDER (*Idem*).—Yes, asphalt will answer well if it is necessary to place a substance impervious to roots beneath the border. It is, we may remind you, only requisite when the border overlies cold heavy clay or marl. Upon a gravelly or rocky substratum a concrete substance is an evil rather than a benefit. Take care that the asphalt slopes from back to front of the border, and that the drainage is thoroughly efficient.

PAYMENT FOR TRENCHING LAND (*Idem*).—Light soil, 16 inches deep, 10d. per square perch; medium soil, 1s.; and heavy soil, 14d. We have lately had an acre of medium soil trenched at the rate we quote, and the men, who were picked skilled labourers, by working hard earned a pound a-week. Weakly or unskilled men could not have done so.

"SCARLET" PRIMULAS (*W. Harris*).—The blooms sent are very good both as to size, form, and colour. The colour is rich red vermillion suffused with rosy purple at the base of the segments, the eye being deep orange. Fertilise the best-formed flowers with pollen from those having the brightest colour and you will produce varieties worthy of being submitted to the Floral Committee of the Royal Horticultural Society. You possess an excellent strain.

WHITE CYCLAMENS (*H. J.*).—The flowers are pure, well formed, and attractive, but rather small. The strain, however, is good, and with careful selection and good cultivation you will certainly obtain "something worth looking at."

NAMES OF PLANTS (*J. O.*).—1, *Lamium purpureum*; 2, *Veronica Bux-banani*; 3, *Euphorbia Peplus*. (*Juvenile*).—*Taxonia eriantha*. (*J. M.*).—*Chelanthus* sp. (*W. M. B.*).—It may be a species of *Westringia*, but the specimen is insufficient. (*J. F. Cromwell*).—The Fern is immature. The flower is *Alonsoa incisaefolia*. (*Mrs. L.*).—A form of *Lastrea spinulosa*.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

MANAGEMENT OF PASTURE AND PARK LAND.

PASTURES on sandy land require to be treated very much in the same manner as those on gravel soil; they are, however, oftener found to require a dressing of chalk or lime as well as earth, and the earth should be nearly approaching clay if it can be readily obtained, as it prevents the effect of drought in summer, especially when the subsoil is composed of sand as well as the surface. When, however, the sand surface rests on chalk or sandstone the land is more holding, and we find the herbage much sweeter, and it does not produce weeds and sour grass so profusely as the sand soil, which runs to a great depth.

We will now refer to pastures and meadows more particularly resting on peat, and commonly called peat mosses. These if totally neglected are amongst the poorest we meet with, but they may be made exceedingly productive, first by draining; and the drains should always be placed deep enough to place the tiles below the peat stratum in any soil which may be found under, whether sand, gravel, or clay may underlie. Unfortunately drains placed in the peat soil are nearly sure to be stopped and clogged with red ferruginous deposit oozing out of the peat. We find the drains act well, however, when the tiles are placed in a substratum of gravel, clay, &c., and covered with the same instead of covering-in with peat. When drained, peaty pastures should have a heavy dressing of any earthy substance: clay or gravel will

answer, as it presses the spongy peat and makes it fertile, giving it a substance, and even in the after-management a dressing of fine gravel will do more good than a coat of yard dung. We have now land as good pasture as may be desired which has never been manured, only clayed and gravelled occasionally. This is explained by compressing the peat, which is no more or less than vegetable matter in decay, and this when made dry and compact yields plant food largely and constantly. We often find productive water meadows resting on peat, and the process of irrigation is the cause of their fertility. As there are continually earthy deposits left by flood water, these meadows without irrigation are comparatively worthless and grow the coarsest of grasses. The last soil we shall name as pasture is marl, which is a kind of clay with some lime in it, but on account of the close and heavy nature of the soil it often yields very poor pasture, but when it is assisted by manure such as guano and nitrate of soda it becomes very productive. Pastures resting on marl do not require bone or mineral superphosphate, because the lime they contain varies from 10 to 25 per cent., and when ammoniacal manures are applied the grass strikes its roots deeply into the soil and derives benefit from the lime, and potash too, for heavy soils usually contain more or less of potash. It sometimes happens that these heavy lands, whether of clay or marl, after great neglect show but little herbage, and where the grasses have died out they should be renovated by sowing seeds adapted to the soil. We, however, cannot now name the sorts of grass seeds we recommend, as we hope under the head of "Laying Down Permanent Pasture" to give them in detail at a future time. In alluding to pastures generally we must include all the varieties of soil, and but few of them have been so managed as not to respond readily to the application of manure and compost. The difference in the value of hay and grass where the quantity of produce is the same is only to be accounted for by reason of the nature or latent value of the soil. This difference, however, leads us to think that we may give the land artificially that which it is deficient in naturally, and all our previous observations lead up to this point, which we consider ought to be the study of the farmer or manager of pasture or park land, otherwise it is very easy to throw away money in applying substances called manure injudiciously and indiscriminately selected. Our own experience induces us to recommend that Peruvian guano is the best artificial manure for pastures in general, nitrate of soda and bone superphosphate next best; and this selection is fully borne out by the experiments of all those whose statements can be relied on. We use from 2 to 3 cwt. per acre of guano, and of nitrate and superphosphate 2 cwt. of each, and this as an annual dressing will keep almost any pasture or park land in a productive state. We have always noticed that the oldest pastures are more productive than those which may have been recently laid down. This will be evident to any observer who will examine the earth immediately under the surface, for in all old grass land there will be found a kind of humus or vegetable mould, often an inch or two in thickness, formed by the annual decay of the roots of the grasses; and this in some soils has been going on for generations, giving the pasture a fertility which is totally absent in recently-made pastures, and in the latter case rendering a dressing of manure an actual necessity almost every year to obtain full crops of grass.

The method of stocking pastures is important, as well as the period of feeding, and to maintain all the best grass in the soil the pasture or park land should be fed with cattle and mown for hay alternately. When appearance is the chief point, as in park land, it may be requisite to feed every year, as grass crops and haying are sometimes considered unsightly objects. Cattle and sheep may often be fed together with advantage, and if so it should be in the summer months whilst the grass is full of growth. Cattle may feed the pastures in the winter months when the weather is dry enough; but sheep should be kept entirely out of grass land in the winter and early spring, as they bite so closely as to damage the heart of all the best and finest grasses. Horses also eat the grass down very bare, and we have land under our own care which has been doubled in value of produce during the past three or four years by entirely excluding the sheep both in summer and winter, and being fed only by dairy cows and cattle. Wherever cattle are feeding the droppings ought to be collected every few days and taken to a compost heap for future use, otherwise when the dung is allowed to remain and the grass to grow through it comes very unsightly, and large bunches of grass are left unconsumed. This grass runs to seed heads, which often produce "ergot," and this is very prejudicial to cattle when eaten, and with dairy cows it is often the cause of casting and premature birth of the calves. In order to prevent this calamity and to enable the aftermath or latter growth of grass to come with regularity, the tufts and bunches of grass not fed down should be mown down with the scythe and carried away for bedding or such-like purposes. It is, however, when required given to horses, and they will eat readily what the cows refuse; in fact horses are often turned in to eat the clumps of grass when the pasture is not required for the dairy cows for a time. We omitted to notice

above the practice of boneing grass land as done in Cheshire and other counties, where as much as £10 per acre has been expended in one dressing of coarsely broken bones. These without doubt effect a lasting and permanent value of the pastures; but we prefer the mode of annual dressings, as £10 per acre is a large investment which many persons cannot afford. Besides, it ought first to be a matter of experiment as to the result of so large and costly a dressing, for we have found that this application has not answered the purpose in some instances, whereas in others it has doubled the letting value. Where pastures have been dressed with dung and compost it is always necessary that it should be carefully and regularly spread, and as soon as the weather will permit the ground should be chain-harrowed. The chain harrow is a capital implement and a great improvement upon the old bush harrow of former times. Before laying-up for hay all grass land should be carefully looked over, picking stones, sticks, and all extraneous matters, and at weeding time docks and all weeds, together with all roots of brambles, furze, &c., should be taken up with a small pick, pointed at one end and a sharp edge 2 inches wide at the other end. This is the only implement we ever allow in use for weeding of all crops, whether of grass or grain, as the common weeding spud often used cripples the weeds but never eradicates deep-rooted plants such as docks, brambles, &c.

The fencing and division of pastures and park lands is important in various ways, keeping the cattle within certain bounds in one case; in others the ornamental part of the question crops up, and anything unsightly would be often instantly rejected. Iron fencing is now much in use, and we have had a great deal of wire fencing put up, not only for temporary protection to fresh-planted quicksets, but as permanent fencing; but we do not recommend it except for cheapness, having known very serious accidents occur to valuable cattle. We, however, prefer the flat-barred iron fencing, which is very strong and durable. The cattle can see it better, and are entirely deterred from attempting to pass over or through. It is the truest economy in the long run, for wire fencing, although cheap to erect, is continually requiring repairs, and we do not like to trust valuable stock, either cattle, horses, or sheep, within wire fencing only.

WORK ON THE HOME FARM.

On the light soils it is not too soon for the planting of early potatoes, the horses will consequently be employed by drawing manure to the field. When the weather is favourable it is none too early to put in beans, peas, summer tares, &c., which will engage the horses in ploughing for some little time. At this early period we do not trust to ploughing before planting and sowing, as any little change in weather, whether of frost or rain, delays the seed time on a stale furrow; but the work is best done by finishing daily at one operation by ploughing, planting, and seeding the land. For this work the small drill attached to the plough depositing the seed in the furrow answers a good purpose. Any manure not laid out on grass should be carted out, the sooner the better, and before the horses become entirely engaged in tillage work.

Hand Labour.—The men will now be required to assist in preparing manure for the spring crops; guano to be broken down fine for the potato crop and the pastures. This may, however, by anticipating the requirements, be done when the men are driven to the homestead by wet days or storms, as we hold it to be good policy to pay the men for their whole time, finding them work under cover instead of deducting wages for wet days. To make this answer the farmer's purpose it only requires a little foresight, so as to get all work which can be done under cover completed in readiness for fine weather. Breaking guano and passing it through a half-inch sieve or screen is important, for if large lumps are sown on the land they only destroy vegetation for a small space instead of properly manuring a larger space. Other winter work if not finished should now be completed, such as banking, hedging, trenching, trimming the quicksets, &c.

The shepherd, too, will be fully engaged, whether with an ewe flock or dry flock. If with the former the lambs from Hampshire and Sussex downs will now be falling and require his constant care and attention; and this is not a matter to be left to the shepherd entirely, as few men take sufficient interest in the work as to be trusted without the supervision of the master pretty constantly, even if they have had sufficient experience. The management, however, of a dry flock, either for stock or fattening, is a more simple matter, but still requiring unremitting attention of both men and master. Foldyards will now have to be provided for all the flocks which are lambing and about to lamb. Our mode of making the fold is by a double line of hurdles stuffed with straw between the lines; or if with a single line of hurdles bairns set on end attached to the hurdles may answer; but the fold should always be made in a sheltered spot, and if near the shepherd's cottage or farm homestead so much the better. In order that the fold may be always as dry as possible we place at the bottom 8 or 10 inches of mould or sand, and then litter with straw as required; but when the fold is placed on sloping land less litter and less earth is required, because all moisture drains away readily. Sand spread over the fold as well as straw every

Women may now be employed in picking stones, sticks, &c., on the pastures, as these are impediments in mowing the crop for hay. They may also be employed in preparing carrot seed, which we have done by hand-rubbing with harvest gloves, to divest the seed of the burr, and when winnowed the seed will drill freely. This we prefer to mixing the seed with the manure, ashes, &c.

We are approaching the time of year at which in England we have the worst of our frost and snow. Especial management is then necessary for poultry; for the breeding season being at hand, or in yards where very early chickens are desired having actually begun, any carelessness is sure to throw back the laying hens and to do much harm. If possible a master or mistress should always rally forth in bad weather; example does much and shames others into activity. To begin with. Put down straw in the house; barley and oat straw are best for this purpose, it keeps the birds' feet free from cramp, and an occasional handful of corn thrown amongst it gives them employment in scratching. Water must be given twice a-day in small quantities, and every pan emptied at sunset, or they may be frozen and cracked. Food should now be chiefly soft, the birds are unable to find sufficient grit to help them in digesting hard food. A good feed of meal given twice a-day, warm if possible, and some kitchen scraps are the best diet. Watch the hens that they do not peck the cocks' combs; this vicious habit is generally contracted during cold, when insect food is not obtainable. A cock so treated must be at once removed and kept by himself till the wound has completely healed. Green food is of course desirable if you can spare it soft and good, but better let them go without it than give tough frozen grass or vegetables, which bring on hardness of crop. If the weather be sunny sweep away the snow for a few yards round the house, and if there be a sunny corner or bank near sweep a way to it. We have little idea of the warmth there is close to the ground in sheltered spots, and a few hours' sunshine in such a place is to them as pleasant as a stroll on the Italian Riviera to us. If the winds are piercing and the houses in exposed situations keep them entirely closed. A little common sense in such matters is worth much, and if it be duly exercised the birds will come out at the thaw none the worse, revel in the then-uncovered grass, and begin laying at once. On the other hand, if they are neglected, left exposed to every wind, and denied water, they shiver about in misery, eat snow wholesale, which brings on violent dysentery, and are thrown back for weeks.

The power of enduring cold which fowls reared in a truly hardy manner have is wonderful. We have had Golden Hamburgs sleeping in the trees through long and severe frosts, though through the day they generally congregated in a shed looking south to lay in a store of heat; but then they had never known coddling. Game Bantams, too, we have had which for years always roosted in Portugal laurels, and once during a famous snowstorm when the thermometer went down almost to zero a White Bantam cock lived aloft for many days without food, taking long flights from tree to tree, but never daring to come down. This, it is almost needless to say, can only be allowed with impunity in the case of birds which have long been unhouased and so gradually hardened; such birds seem to have perfect immunity from coughs and colds.

Never turn out a bird after exhibition into a cold house ; its comb will probably be frost-bitten the first night. We had a noble Dorking cock spoilt in that way. He had been penned up a fortnight to hasten the moult in a warm place, and the very first night he went out unfortunately proved the coldest in an otherwise mild winter ; the end of every peak on a faultless comb was frost-bitten and came off. Another similar accident we had not long ago. A bird purchased at Birmingham was sent in an unlined basket, met a cold wind on a cart's top, and in consequence lost the greater part of his comb. In the latter case the mischief might probably have been avoided if the bird had been kept in the dark and not taken into too warm a room. Guinea Fowls appear to suffer much in the feet from cold. If you can coax them into a building keep them there. Ducks, too, which are hardy enough against all inclemency of the skies, are often cramped from standing on ice or icy ground ; a thickly-strawed bed is all they require.—C.

THE sixth annual Exhibition was held on January 23rd and 24th, in the Skating Rink, at the Bell Hotel, Maidstone, when the following prizes were awarded :—

POULTRY—DORKINGS—Coloured—1, H. Stephens. 2, G. W. Greenhill. 3, E. Rice. *Silver-Gray*—1, F. Cheesman. 2, Mrs. Wachser. 3, J. Boulding. *White*—1 and Cup, B. A. Boiesier. 2 and 3, Mrs. W. Stratford. **COCHINS—Buff or Cinnamon**—1 and Cup, G. Dowker. 2, Mrs. A. Christy. 3, C. M. Stickings. *etc.*, F. M. Cobb. *Any other colour*—1, B. A. Boiesier. 2, Miss Mansel. 3, W. A. Tucker. **SPANISH—Black**—1, J. Francis. 2, C. W. Hammond. 3, F. Cheesman. **BRAHMA—Dark**—1 and Cup, Miss E. Shooter. 2, F. Lake. 3, J.

Reds. *Light*—1, and *who*, G. Dowder. 3, H. Stephens. *GAME—Black*
Harvey. 1, J. Dickson. 3, and 3, F. Warde. *Brown Reds*—1, Cup. 2, and 5, F.
Warde. *Any other variety*—1, F. Warde. 2, F. FitzHerbert. 3, Harms and
Elliot. *HAMBURGERS—Gold-spangled*—1, C. Brown. 2, F. Winsor. 3, F.
Cheesman. *Silver-spangled*—1, T. Evans. 2, T. Goodwin. 3, T. Kennet.
Gold-pencilled—1, H. Mitchell. 2, H. White. 3, W. Taylor. *Silver-pencilled*—
1, and 3, B. Norton. *HOUSING—Nickel*—1, G. Fowler. 2, G. Goodwin.
1, and 3, B. Norton. *HOUSING—Cup and who*—Mrs. Vallance. 2, Miss E.
Mansel. 3, F. Lake. *CRUVE-COURT*—1, and 2, H. Stephens. 3, Miss A. Sharp.
ANY OTHER VARIETY—1, H. Stephens. 2, Mrs. A. Christy. 3, Miss E.
Mansel. *BANTAMS—Game*—1, Special, and Sack of Poultry Food, J. Bateman.
2, T. Kennett. 3, F. Warde. *No Game*—1, E. Ayre. 2, G. F. Ladd. 3,
J. Buss. *DUCKS—Aylebury*—1, Mrs. C. Bailey. 2, A. Barrow. 3, F. Lake.
who, F. E. Arter. *Rouen*—1, and *who*, H. H. Kingsnorth. 2, J. Hargry. 3,
B. Ratcliffe. *Any other variety*—1, A. K. Chesh. 2, G. Fowler. 3, O. H. Barrow.
GOOSE—Cup and who—1, and 2, W. L. Will. 3, F. FitzHerbert. 4, H. White.
TURKEYS—1, 2, and 3, F. Warde. *who*, R. White. *SELLING CLASSES—Cock or*
Drake—1, G. Dowder. 2, Mrs. A. Christy. 3, E. Rice. *Hens or Ducks*—1, T.
Goodwin. 2, T. Evans. 3, C. M. Stickings. *who*, H. H. Kingsnorth, R. B. Curteis.
PIGEONS—CARRIERS—Cock or Hen—1, 2, and 3, J. Chandler. *POULTRY*
Cock or Hen—1, J. Chandler. 2, and 3, H. Gill. *FANTAISE*—1, F. Winsor.
2, H. Webb. 3, C. F. Shoemith. *TUMBLERS*—1, J. Chandler. 2, F. Winsor.
3, Smith. 4, F. H. Smith. *WHEELERS*—1, and 2, W. L. Will. 3, W. Shrubsole.
WHEELERS—1, and 2, W. L. Will. 3, C. H. Ridley. 4, E. A. Gardner. *HOMING*
ANTWERPS—1, F. Winsor. 2, and 3, W. J. Palmer. *ANY OTHER VARIETY*—
1, and 3, J. Chandler. 3, E. Williams. *SELLING CLASS*—1, D. Keall. 2, H. W.
Webb. 3, F. M. Cobb.

RABBITS.—LOPARED.—*Black*.—*Doc*—1, F. Cleaver. 2, F. Winsor. *wh*. W. Millen. H. Barham. HIMALAYAN—1, R. B. Newsum. 2, G. W. Greenhill. SILVER—*GRAY*—1, R. B. Newsum. 2, H. Barham. BELGIAN HARE—1, H. Barham. 2, R. B. Newsum. ANY OTHER COLOURS.—1, F. Cleaver. 2, T. Goodrich. 3, H. B. Newsum. SELLING GLASS.—*Duck* or *Doc*—1, F. Winsor. 2, R. B. Newsum. *wh*. Hon. Mrs. Nevill. W. Sedgwick. CATS.—*TABBY*.—Any colour, or *Tubby* and *white*.—1, R. N. Cradlan. 2, Winsor Bros. *wh*. Miss Bligh. ANY OTHER COLOURS.—1, Winsor Bros. 2, T. Goodrich. 3, H. B. Newsum. KITTENS.—1, Winsor Bros. 2, Miss Bligh. *wh*. H. G. Howe. KITTENS.—1, Miss S. Mackinnon. 2, Winsor Bros.

JUDGES.—*Poultry and Pigeons*: Mr. R. Teebay. *Cats and Rabbits*: Mr. G. Billett.

st Exhibition was held in the Corn Exchange, Yeovil, on 23rd and 24th, and we are informed was a very successful one. It numbered 450 pens of poultry and 800 of Pigeons. The place was decorated for the occasion, and visitors were very numerous.

POULTRY—**DORKINGS**—*Coloured*—1, E. Burton, 2, O. R. Creswell, 3, Mary Everett, *any variety*—1, The South Wales Live Stock Co., 2, J. D. Lang, 3, O. R. Creswell. **COCHINS**—*Cinnamon or Buff*—1, Cup, and 3, C. Bloodworth, 2, H. Tomlinson. *any other variety*—1, G. Lina, 2, J. Turner, 3, E. Snell. **BRAHMAS**—*Dork*—1 and 3, H. F. Hamilton, Equal 3, J. Doel. 2, — *Lays*. *Any other variety*—1 and 2, J. Doel, 3, E. Snell. **GAMES**—*Bantams*—*Brown Red*—1, Rev. A. Cruwys, 2, H. Brown, 3, J. Andrews. *Black*—1, J. Andrews. *Hampeburgers*—*Gold and Silver pencilled*—1, O. R. Creswell, 2, H. Feast, 3, W. Tickner. *Golden and Silver spangled*—1, S. R. Harris, 2, The South Wales Live Stock Co., 3, J. Long. **SPANISH**—*Black*—1, J. Hunt, 2, F. W. Pitt, 3, J. Boulton. **MINORCA**—1, F. J. Buckner, 2, H. Elston, 3, J. Adams. **LEGHORN**—1, Bradbury Bros., 2, G. Lugg, 3, E. West. **DUKES—1, N. J. Moore, 2, W. Hamman, 3, J. Long. **OTHER**—*Any variety*—1, T. Norwood, 2, J. Hamilton, 3, Copp. **BANTAMS**—*Game*—1, J. Long, 2, F. Elston, 3, S. Allen. *Any other variety*—1, C. Manchip, 2, F. Geary, 3, D. C. Wingfield. **DUCKS**—1, S. R. Harris, 2 and 3, E. Snell. **SELLING CLASSES**—*Cock*—1, Capt. L. S. Robins, 2, J. Boulton, 3, — *Stags*. *Hens or Pullets*—1, T. Moore, 2, R. P. Wheadon, 3, T. Joint. **LOCAL CLASSES**—*Brahmas, Dorkings, or Cochins*—1 and Special, 3, Hebditch jun., 2, J. Moore. *Minorca, Game, or Spanish*—1, J. W. Hunt, 2, W. H. Hunt. *Hampeburgers*—1, J. T. Cable, 2, H. M. Watts, 3, G. W. Gawler. *Any variety*—1, A. Ring, 2, J. T. Cable, 3, Mrs. H. R. Samuelson. **Crossbreeds**—1, T. S. Cable, jun., 2, C. Dimmock.**

PIGEONS.—CARRIERS.—1 and Cup, J. Baker. 2 and Equal, J. Chandler. 3, T. Wicks. *etc.* W. Hinchley. FOUTERS.—1, J. Baker. 2, P. Harriett. 3, J. D. T. Wicks. *etc.* Lang. G. Packham. BARBS.—1 and 2, J. Baker. 3, H. Yardley. TUBULARS.—*Short-faced*.—1, 2 and 3, J. Baker. Equal 3, G. Webster. *Long-faced*.—1, G. Packham. 2, J. Barnes. 3, H. Yardley. DRAGONS.—*Blue*.—1, G. Packham. 2, W. W. Jacks. 3, T. W. Wheeler. *Silver*.—1 and 2, W. Osmond. 3, J. Allen. *White*.—1, G. Packham. 3, J. D. Lang. 3, W. D. Richardson. *Any other colour*.—1, W. Osmond. 2, G. Packham. 3, W. D. Richardson. JACOBIENS.—1, 2 and 3, J. Baker. FANTAILS.—1 and 2, J. L. Smith. 3, J. F. Lovenside. *etc.* Miss S. Dickinson. W. J. Warhurst. OWLS.—1 and 2, J. Sparrow. Equal 2, J. Barnes. 3, J. L. Smith. Equal 3, H. Crosby. *etc.* Gregory. TURBOTS.—1 and 2, G. Webster. 3, F. Hodding. ANSWERS.—*Short-faced*.—1, J. Chandler. 2, H. Yardley. 3, S. Mansford. *Long-faced*.—*Blue* or *Blue-checked*.—1, J. W. Barker. 2, H. Crosby. 3, P. F. Harriett. *Long-faced*. *any other colour*.—1, P. F. Harriett. 2, J. Baker. *etc.* T. Herriett. T. Wicks. OTHER VARIETY.—1, J. Baker. 2, H. Yardley. 3, P. R. Spencer. SELLING CLASSES.—1, J. Baker. 2, G. Packham. 3, J. Sparrow. ANY VARIETY.—1, E. Burton. 2, G. H. Billitt. 3, J. Chandler. LOCAL CLASS.—1, Picture. and 2, B. Corie. 2, W. Pardy.

JUDGES.—*Poultry*: Rev. G. F. Hodson. *Pigeons*: Mr. P. H. Jones.

THE annual Exhibition was held on the 26th inst. Wolverhampton has always been regarded as one of the most important shows in the midland counties; and the absence of Bristol from the list this year, a Show that offered good prizes and peculiar advantages for late-hatched birds, has led many to expect unusual things from Wolverhampton. The Show was held in the Agricultural Hall, and the management was, as usual, all that could be desired. We are pleased to add that the attendance of visitors on the first day promised to give the Committee a substantial return for their liberality.

The Judges were for poultry Messrs. Hewitt and Nicholls; Pigeons, Mr. Allsopp.

Game cocks occupied the first place in the catalogue, a strong class of twenty-two. The prizewinners were all birds of great merit. Black Red cockerels were a good lot, but we liked the class for Brown Reds better as exhibiting more style than the

former. *Dark Brahmas*.—Cock and hen an excellent class, the cup going to a beautifully marked hen with a large well-shaped cock a little grizzled in the thighs. Second we think contained the winning hen at the Palace with a fair cock. Cockerels were a large class of nineteen. We noticed here that many former winners were very much out of condition and rough in plumage, evidently the effect of overwork. The winner was a nice-coloured bird with plenty of leg-feather without the objectionable vulture hock. The second was good in shape, style, and colour, but rather loose in the wings. Third a mottled-breasted bird with a very neat head and comb. Pullets were not equal to the cocks. First was clear in markings, but had too much hock to please us; second also good in markings. *Lights*.—The old class was very meritorious, the cup going to a splendid pair. The second we thought almost equal to the first. Cockerels, sixteen entries.—First a fresh-looking bird, well feathered and free from hock; second a well-shaped bird, but heavily hocked; third a good bird, but very creamy. The pullets were again behind the cocks in quality. The winner was good in colour, size, and shape. Second small but pretty. *Dorkings* were not numerous; the cup was awarded to a good pair of Coloured. *Cochins*.—Buffs, with the exception of the cup pen for old birds, did not strike us as showing off more than ordinary merit. Partridges, on the other hand, were splendid classes, Mr. Wood taking a large share of the prizes with some well-known birds. The White were also very superior, the first being very large and pure in colour. Blacks were good in numbers, and we noticed a marked advance in the cultivation of this colour, many of the birds possessing characteristics equal to the Buff. The hen in the first-prize pen was very large, well feathered, and good in shape. The winners among the chickens were superior in almost all points. *French* capital classes, *Houdans* the most numerous, but *Creves* the best. *Spanish* were, as might have been expected, splendid classes. This season of the year offers special advantages to this variety. Old and young should be now, if ever, in splendid condition. The Crystal Palace winner in the old cock class was just looking his best. Hens a splendid lot, but we thought Mr. Jones's highly commended pen should have been first. *Polish*.—First a handsome pair of Silver-spangled with immense crests, second Blacks, also good. *Variety class*.—A pretty pair of Brown Leghorns were first, a large pair of La Fleche second, a pair of Cuckoo Cochins third. The Selling classes were well filled and offered some splendid investments, many of the birds being fit to win in the open classes. The first Spanish cock and the pair of hens here would have been quickly claimed at the Crystal Palace at three times their restricted price. *Ducks*, first an immense pair of Rouen, second Aylesbury. The Variety class contained some very admirable specimens. *Hamburgs* should be mentioned as deserving considerable credit. The cup went to Blacks, which did not appear to give satisfaction to the majority of the exhibitors of this variety. Game *Bantams* were few, and with the exception of the first-prize pen we thought them only moderate. *Sebrights* were a charming lot. First a pair of Silvers, neat in combs and beautiful in lacing. In the Variety Blacks were first.

Pigeons disappointed us very much, not any of the classes calling for special mention. Wolverhampton is so near Birmingham, one of the centres of the Pigeon fancy, that we expected a much more spirited competition.

HARE AND RABBIT HYBRID.

SOME of your readers who take an interest in Rabbits may like to know that I have in my possession a very handsome doe Rabbit, aged ten months, the result of a cross between a jack Hare and a tame doe Rabbit. It is double lop (very long), of a grey colour, and weighs between 8 and 9 lbs. As I saw in your Rabbit Manual that the Curator at the Zoological Gardens could not effect a cross between the Hare and the Rabbit, I presume this is rather a novel fact.—D.

PIGEON LAYING FOUR EGGS.

As the laying and hatching of four eggs by one Pigeon at one time seems really an unusual occurrence, perhaps you may like to have the whole of the facts, so that the case may remain on record for the information of naturalists and future inquirers.

Four young Antwerps were given to me by a friend. When they became old enough two of them paired, only one of the four being a hen. I had no other Pigeons. This hen laid four eggs, two of which she turned out of the nest and sat on the other two, which, however, proved clear. She soon began to lay again, and again laid four eggs, and hatched them all. While she was sitting I obtained two more hens, which immediately paired with the two remaining cocks. These new hens laid and are now sitting.

There was no other hen in the house when the first one laid the four eggs, neither is it possible that any strange hen could have had access to the nest, nor could any person have tampered with the nest, as it was in an entirely wired enclosure with no trap or entrance (I have not yet allowed my birds liberty), and the hen house was constantly locked and the key in my own possession.

Each egg was hatched about eighteen complete days after it was laid. The two last-hatched birds (very small) did not live more than five or six days, but they looked healthy, and no doubt would have lived had they been transferred to another mother. One of the other young birds has since died one cold night, but seemed healthy. The largest of the four is now strong and healthy and half fledged. Of the parent birds the cock is a Blue Chequer with white flights and tail, the hen Blue with bars like a Blue Rock. The Pigeons are from the loft of Col. Hassard, R.E.—AN OLD SUBSCRIBER.

VARIETIES.

THE Rev. S. A. Brennan writes to us as follows on Gapes in Ducks:—"It may interest some of your readers to know that Ducks are liable to gapes, as a brood brought out in the autumn was seized with them. I never heard or read of an instance before."

—SALE OF PIGEONS.—The late Mr. Henning's famous stud of Short-faced Tumblers was sold by Mr. Stevens on Tuesday, the 22nd. There were about one hundred lots, and the sale realised between £300 and £400. The highest price given for an Almond was, we believe, £11. We saw two Black Mottles knocked down at ten guineas and eleven guineas each. The most remarkable feature of the sale was the large number of birds sold at over £4 each. Altogether it was one of the most remarkable sales we can recollect.

—ACCORDING to the *American Cultivator*, an association is formed to supply the city of Syracuse with pure milk. Each shareholder is a milk-producer, who contributes his own milk by delivery to the Company, each can being tested; and since the name of the man who contributes the milk is on every can, the Company is enabled to trace any deficiency in quality. The basis upon which these producers have associated themselves is that each cow will give six quarts of milk per day for 365 days in the year. That is the average taken the year through. The highest average is 3766 quarts per cow, the lowest 1843 quarts. Ten cows gave 3766 quarts each. The owner of these ten cows supports them on less than an acre each. Holstein and Ayrshire cows are generally preferred for crossing with selected cows of common breed. Corn meal is found most valuable to sustain the yield of milk during the winter.

—WRITING on the subject of feeding dairy cows, a correspondent informs us that Mr. Horsfall, the celebrated dairy authority, feeds his herds as follows:—Each cow receives 9 lbs. of hay, 6 lbs. of rape cake, 1 lb. each of malt comings and bran, with 28 lbs. of roots or cabbage. The food (except roots and hay) is given in a mixed cooked state and whilst warm. In addition to this food a cow in full milk receives 2 lbs. of beanmeal daily, and cows not in full milking order smaller quantities of this article.

—AMERICA'S meat trade with England commenced in October, 1875, with 36,000 lbs., and increased until April, 1877, it had attained to 8,578,213 lbs. Taking both salt and fresh meat, the total weight of dead meat imported into the United Kingdom, most of which is of American production, now exceeds the estimated dead weight of all the live animals imported. In the first ten months of 1877 Great Britain received, principally from America, 88,582,480 lbs. of salted meats, and 100,984,128 lbs. of fresh meats; her imports of fresh meat during 1877 have increased no less than 130 per cent. over those of 1876. Sixty per cent. of the population of Great Britain are dependant on foreign food.

—BEES.—All the bees in the neighbourhood of Allan, Tyrone, have died from starvation, no honey having been gathered in the summer. Stocks that were strong and flying about in December have, even with feeding, all perished.

—MR. STRATTAN recently stated at a meeting of the Monmouthshire Chamber of Agriculture that if it had not been for the prodigious grain crop in America there would have been well nigh a famine in this land. Now there is plenty to be had—only pay for it; but the amount of money to be paid this year from this country for food for man and beast is something very alarming, and probably will not amount to much less than £100,000,000 sterling. If this country could produce enough for its own consumption, and if this vast sum of money could find its way into the British farmers' pockets, there could be no doubt that we should not be hearing such lamentable outcries at the stagnation of trade as are now throughout the length and breadth of the country.

—THE *Irish Farmers' Gazette* reports an outbreak of typhoid fever at Glasgow, which assumed the form of an epidemic, the origin of which has been directly traced to poisoned milk. The medical officer to the health committee made a report on the subject, in which, after giving details showing that the milk was charged with the pestilential elements necessary to reproduce the fever, he remarked that "no more conclusive experiment could have been planned than that which has been unintentionally carried out among the inhabitants of Glasgow and Hillhead." The public spend enormous sums to provide pure water and

adequate drainage. The law lays all kinds of restraints upon vendors of alcoholic liquors, and imposes heavy penalties upon those who sell bad meat. All this is done expressly in order to limit the range and destructiveness of zymotic diseases. Not only so, but milk-sellers themselves are for certain purposes brought under the special supervision of the law. They may be punished for adulterating their milk, or even for diluting it. While we do all this, it is hard to see what objection can be raised to the further extension of the principle, so as to cover the culpable carelessness by which scores of people may at any time lose their lives, or be saddled with permanent and incurable injuries to their constitution. It is high time that milkmen were licensed like publicans, and placed under strict supervision and inspection.

— AN American has written as follows on the care of dairy cows:—The want of proper food, with exposure during calving time and thereafter, will easily account for fully three-quarters of the diseases of the ordinary farm cows. During the season of giving milk there is a severe strain on the animal system. The whole economy of the animal is exerted in the production of milk. Instead of getting fat, the cow does well if she holds her own; indeed, there is now and then a cow that, however fed, cannot be made to gain flesh during the milking season. They "run to milk," and the more feed the more milk. Is it strange that a cow at the end of the milking season be weak and more susceptible to changes of weather and to disease than those which have not had this drain on the system? Yet when a cow becomes dry or nearly dry she is too often turned out in the yard or stalk field to shirk for herself, when perhaps the increasing demands of an unborn calf are taxing her energies to the utmost.

— A CROP of 300 bushels of potatoes per acre removes about 180 lbs. of mineral matters, of which about one-half consists of potash and one-ninth part of phosphoric acid. A mangrel crop, weighing 20 tons of roots per acre, removes from the soil (excluding the amount taken-up in foliage), from 300 to 380 lbs. of mineral matter, including from 100 to 140 lbs. of potash, and from 15 to 25 lbs. of phosphoric acid. Cereal crops remove only about 85 lbs. of mineral matter per acre, of which 10 or 12 lbs. consist of potash, and 14 or 15 lbs. of phosphoric acid.

— DESICCATED EGGS.—The perishable nature of eggs has naturally detracted from their value as a standard article of diet. But lately the process of crystallising has been resorted to, and by this process the natural egg is converted into a vitreous substance of a delicate amber tint, which retains its properties for years unimpaired in any climate. In this form eggs may be transported without injury either to the equator or the poles, and at any time can be restored to their original condition simply by adding the water which has been artificially taken away. The chief egg-desiccating companies are in St. Louis and New York. No salts or other extraneous matters are introduced in the process of crystallising, the product being simply a consolidated mixture of the yolk and albumen. Immense quantities of eggs are preserved in the spring of the year by liming. Thus treated they are good for every purpose except boiling. It is a common trick for some dealers to palm off eggs so treated as fresh, so that imposition is easily practised. In the desiccating process, however, the difference becomes apparent, as from four to five more limed eggs are required to make a pound of eggs crystallised than when the fresh eggs are used, and eggs in the least tainted will not crystallise at all.—(*Cincinnati Commercial*).

— MR. CRANE, an American pig breeder of great experience, prefers the Berkshire breed for the following reasons:—"Because it has more muscular power and vitality, is hardier and less liable to disease than any other, and will make more pounds from the same quantity of food. Because the sows have large litters, are excellent nurses, and the pigs are stronger and better able to care for themselves. Because its flesh is finer grained, tender, juicy, and very solid, and ready for market at from six to eighteen months old. Because it is altogether the best to cross upon common stock."

— NOT only does America export large quantities of beef to this country, but a steamer lately arrived at Liverpool having as a part of her cargo 3500 turkeys, 1310 geese, 950 pairs of ducks, and 1321 pairs of fowls. The same vessel brought 1000 barrels of American apples.

— THE following experiment, says the *Prairie Farmer*, will bring fresh to mind what many know as to the value of charcoal, not only when fattening turkeys but other fowls. It will also be found a good corrective when used occasionally in winter when the fowls are confined to their quarters. The experiment was as follows:—Four turkeys were confined in a pen and fed on meal, boiled potatoes, and oats. Four others of the same brood were also at the same time confined in another pen and fed daily on the same articles, but with a pint of very finely pulverised charcoal mixed with their food, mixed meal and boiled potatoes. They had also a plentiful supply of broken charcoal in their pen. The eight were killed on the same day, and there was a difference of

1½ lb. each in favour of the fowls which had been supplied with charcoal, they being much the fattest and the meat greatly superior in point of tenderness and flavour.

FOOD AND FEEDING.

"A CONSTANT READER" asks this question, "What is the best food for bees?" Doubtless he means artificial food. Honey pure and simple is the natural food of bees, and is therefore the most wholesome. The best artificial food is syrup made of sugar and water at the rate of 1 lb of good sugar to one pint of pure water. Some use a larger proportion of sugar to the water with a view to make the syrup better and sweeter for the bees, and some enlightened apirians say that one pint of water to a pound of sugar is too much, as it necessitates the bees to eliminate or throw off more moisture than is good for hives. We have never once seen nor found any injury to bees or combs from using syrup mixed at the rate of one pint of water to 1 lb. of sugar, and this is the mixture we have given to bees for many years. Last year we gave our bees more than half a ton of syrup to keep them alive and strong. Good sugar mixed at the rate now indicated is a very near approach to the natural food of bees both as to sweetness and thickness. The syrup naturally found in flowers is no sweeter or thicker than sugar and water mixed at the rate of 1 lb. to a pint. The readers of this Journal have been frequently told that both the syrup of flowers (natural food) and the syrup of sugar (artificial food) are chemically changed after they are carried into the hives. This chemical action eliminates much water, leaving both the natural and artificial food much thicker and sweeter than they were when first presented to the bees. All artificial syrup used for winter food should be boiled before it is given to the bees.

The facts we have now stated respecting the change that syrup undergoes in the hive help us to determine the best times for giving it to bees. Winter feeding should be avoided in a cold country like England. The artificial process of feeding bees should be completed in October. The bees are thus enabled to prepare their food for winter use and properly store and seal it up. Artificial feeding in winter is very unnatural, and is attended with many dangers. Such feeding may cause the bees to leave their hives in cold weather and be chilled to death outside, and it might stimulate the bees to commence breeding too soon. Brood requires water, prepared food, and heat, and in cold weather bees cannot do much for their young. They have enough to do to keep themselves warm enough to live. Hives that have been neglected in autumn should not of course be allowed to perish in winter for want of food. They should be taken into a warm room or hothouse and there fed with warm syrup, keeping the bees of course inside their hives.

"A CONSTANT READER's" hive which weighed 23 lbs. in September will probably require feeding next month. As his residence is in the south (Salisbury) he may safely begin to stimulate his bees by slow and gentle feeding by the middle of February. What is meant by gentle feeding? Giving a hive a small dose of syrup three times a week, say 1 lb. of sugar in a fortnight. This gentle spring feeding is a great encouragement and stimulus to bees, and costs very little. Let all bee-keepers look to their hives now and see that none be lost from want of food and attention.—A. PETTIGREW.

WINTERING BEES.

ON page 60 Mr. Pettigrew declares our little favourites must be kept warm; in short, are doomed to a life "of suffering during the winter months," "suffering" doubtless, but only at the hands of their ignorant possessors. But this is not the way your correspondent puts it. "Nature, in the case of animals of various kinds, covers them with hair, and wool, and feathers on the approach of cold weather. The All-wise Creator covers them with good warm coats." Overlooked in the great scheme of Nature, coatless, he proposes to supply the want as follows:—"If I were asked what covering I would prefer for a hive in winter I would say a large woolly sheep's skin turned inside out and tied closely round the hive." We had heard of the "warm" theory before, and of bee-keepers ignorant of the natural history of the bee transferring their hives to their greenhouses for the winter with most deplorable results. In your correspondent's case the warmth of the wool would at once greatly raise the internal temperature of the hive, and the dormancy of the bees would be destroyed. He stipulated the skin was to be tied "closely;" the closer the worse, the heated vapour finding no way of escape through the dry hard impervious skin. It mattered little whether the hive were of wood or the orthodox straw, would rapidly condense in all probability on its sides and combs, and the "suffering" consequently entailed on the little people through the damp and moulded combs must sooner or later inevitably as well as hermetically seal their fate.

If cold is so prejudicial to bees, how comes it that power is given them to resist the intense frosts of the fearful winters of

Russia and North America with impunity? and also with us, when they make their escape from their careless owners for the bee tree, the old church tower, or the house-top, bidding for ever adieu to the ill-ventilated, damp-soaked, old-carpeted, old-bagged, straw-dwelling vermin-secreters. According to the "warmth" theory coatless and unprotected at the approach of cold weather the bees must inevitably perish; but no, they inhale with delight the pure fresh air, on the occasional mild winter day feast on their treasured store, rush forth, and disport in the bright sunshine happy as children on a holiday, and on the return of winter's stormiest icy blast they creep all the closer together, the rocking and creaking of the old tree singing the lullaby to their more thorough and snug dormancy. Having served my apprenticeship to bee-keeping amongst the colonies, which were long located in our house roof here, it was long a puzzle why such vagabond swarms preferred settling with us as well as in neighbours' roofs at the very coldest or north aspect, till at last the truth forced itself upon me that it was there they enjoyed the most thorough and undisturbed dormancy with the consequent minimum consumption of store.

The great enemy the bee-master has to contend against is not cold but damp, external as well as internal. I thoroughly agree with your excellent contributor "B. & W.," that it matters comparatively little of what material a hive walls are formed. Straw absorbs, retains, and decomposes from damp much more readily than wood. The secret lies in the top; heated air ascends, and if no provision is made for its escape is bound to condense and trickle down. To illustrate this, eighteen years ago on the memorable morning of 24th of December, 1860, the mercury in the tube of a thermometer inside a hive shrank to 7°, or 25° below the freezing point, and yet that stock survived and came through in fine order, although the four walls were formed of doubled glass secured by wooden corners. I ascribed its preservation to the thorough ventilation afforded by slides of Indian matting running in its bar grooves on the top. That useful material for wintering hive tops I was privileged to recommend first in this Journal before its adoption in America.

My own bees are kept and wintered in high wooden loose outside covers, the body in one piece, top moveable, and covered with zinc, ample facilities for ventilation, and well painted, side entrances to hives closed in winter, central open for free circulation of air. I use no packing stuffs whatever for wintering, being particular that nothing rests on hive tops to prevent the escape of all ascending vapours through the thin slack moveable slides working in the frame bars. In my few straw hives similarly externally protected I find the firm wrought cane flat top being in a piece does not offer the same facility for escape of vapours, and consequently as a rule in the spring examination are not quite so dry internally as are my Stewarton wooden colonies.

In past times in the south the clumsy thick wooden crown boards used on earlier wooden hives did much to impede their proper ventilation during the winter months. Mr. Abbott has done good service to the cause of apiculture by recommending their removal entirely during the dormant season and substituting a "quilt;" of course care must be taken in its construction. A thick wet blanket as well as a central draught are two things to be guarded against in wintering bees.—A. BENFREW'SHIRE BEE-KEEPER.

OUR LETTER BOX.

ACCOUNT BOOK (G. H. W.).—We believe it is not now published.

FEEDING BRAHMAS, COCHINS, AND HOUDANS (B. B.).—We are sorry we are compelled to condemn the dietary of your fowls. We believe it to be the cause that you have no eggs. The breeds are all hardy and good. A large proportion are too young to lay regularly, but some of them should. Cochins and Brahmas should lay at six months old, but you should hatch them earlier. If your birds were April or May pullets they would now be laying if their food were better. Dried potatoes are bad food; they give diseased livers, and they are not good enough. Turnips are worse. Bran and half-ground Indian corn are poor food, especially the former; in fact, all your food is deficient in nutriment and the material for bone. We do not believe you are a savior by these substitutes for proper food. At this time of year, when the grass run yields little in the way of support, your fowls will want more food than in the summer. They have to endure long cold nights. The days are short and chilly. You feed your fowls as if you fed yourself, when the ground is covered with snow and the thermometer is falling daily, on a small portion of cold meat, with cucumbers, radishes, and salads. We believe we can put you on a better plan, and we hope it will not be found more expensive. Let the morning meal be of good ground oats or barley-meal soaked with water; mid-day give whole corn, maize, or barley, the latter preferable; afternoon same as morning. There should be no deviation from this, except when the house scraps and table-cloth sweepings make enough for the mid-day meal. This should be a substitute for it, and not an addition to it. Nothing more is required, and all deviations are drawbacks. The true guide in feeding is to follow Nature as closely as possible. Fowls do not find cayenne pepper in the fields. All these contrivances are injurious. You do not state the width of your grass run, but taking it at 1000 yards in length and 30 in width you may safely keep fifty fowls. We do not say you may not keep more, but you must recollect when you have chickens you will have to devote a space to them, and it is always better to be under than over-taxed.

SELECTING A BREED OF FOWLS (W. W.).—Before deciding on any breed it is necessary to first consult the conveniences for keeping it, next that

which it is proposed to accomplish. We always think crossbreeds are a mistake unless a man thinks they will last his time, and after him "the deluge." If he wishes his fowls to go first they will make nothing because they are cross-bred. Spanish have always been called the aristocratic breed, and they deserve the name. They have the Castilian bearing, and couple it with beauty—black plumage, red combs, and white faces. They are not destitute of homely merits. They lay a large number of very large eggs. They may be hard run by the Crève-Cœur, but in the day when eggs are sold as they should be, by weight, then we believe the Spanish will be the best layers. You cannot do better than keep to them if you will submit to the slight inconvenience of having to procure sitting hens. They do not sit. The Spanish cock should be tall, upstanding, have a perfectly white face, the smoother the better, long legs, and perfectly black plumage; the comb should be quite upright, straight, and as stiff as a cockade. The hen should have the same qualities, but her comb should fall over. In both sexes the legs should be blue. They bear confinement, but do better at liberty.

SIZE OF POULTRY-HOUSE (Yorkshireman).—A wooden house is all that is necessary for any poultry. If you keep fowls by hundreds you should have several houses. There are few places in the country that are not already provided with them. Old cow-stalls, calf-pens, barns, cart-houses, wood-houses, lean-to's—anything will do. To roost a hundred and keep them healthy you want 30 feet by 25.

RING DOVE.—T. Byrne asks what is the usual lifetime of this bird.

ATTACHING PIGEONS TO THEIR HOME (L. B.).—Give them salt-cat. It is composed of about equal quantities of clean unctuous loam, such as brick-makers use, coarse gritty sand or fine gravel, in which the grains are about the size of pins' heads, and old mortar, to this add a small quantity of large-grained salt. Some persons, to make it more attractive, add aromatic seeds. The whole should be mixed-up into the consistency of mortar and placed in a crook, the sides of which are perforated with many holes large enough to admit the Pigeons' heads, and covered with a lid to keep off the weather.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1878.	Barom. at sea- ter level and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		In. sun.	On grass	
Jan.		Dry.	Wet.			Max.	Min.	In sun.	On grass			
We. 23	Inches.	deg.	deg.	W.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	0.012
Th. 24	30.814	40.0	36.4	N.W.	41.9	41.1	33.8	60.3	38.3	28.5	0.000	
Fri. 25	30.859	37.0	35.0	N.	40.6	40.4	33.3	73.5	30.0	—		
Sat. 26	30.816	36.1	33.4	N.	38.0	42.0	39.3	72.9	23.0	—		
Sun. 27	30.815	33.6	33.6	N.	38.2	36.5	39.4	59.8	35.4	0.395		
Mo. 28	30.728	43.0	42.6	S.	38.9	43.6	33.0	46.0	51.7	0.397		
Tu. 29	30.092	33.0	32.1	W.	38.4	41.3	29.5	70.0	25.7	—		
Means	30.793	36.8	35.1		40.3	42.6	32.5	62.6	28.9	0.006		

REMARKS.

23rd.—Bright fine morning, windy, shower at 3.30 P.M.; starlight night.
24th.—Fine morning, with sunshine; overcast in afternoon.
25th.—Great gust of wind at 7.45 A.M., snow showers at 7.40 A.M. and 10 A.M., sunny afternoon; very cold high wind.
26th.—Very bright fine day; starlight night.
27th.—Foggy morning, dull all day; wet afternoon and evening.
28th.—Damp rainy morning, very dark at 0.30 P.M., rain till 3.30, then a little sunshine; cold starlight night.
29th.—Bright sunny morning; misty in afternoon.
Prevailing wind northerly, and temperature therefore more seasonable than in previous weeks.—G. J. SYMONS.

COVENT GARDEN MARKET.—JANUARY 30.

SMALL consignments of late Apples still reach us, otherwise our home market is almost bare. Foreign goods consist of Pears from California, and Pears, Apples, Salading, and Asparagus from France.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	1	sieve	2	0 to 5	Melons.....	each	0	0 to 0	0
Apricots.....	dozen	0	0	0	Nectarines....	dozen	0	0	0
Chestnuts.....	bushel	10	0	30	Oranges.....	100	2	0	10
Currants.....	1	sieve	0	0	Peaches.....	dozen	0	0	0
Black.....	1	sieve	0	0	Pears, kitchen..	dozen	1	0	3
Figs.....	dozen	0	0	0	Pears, dessert..	dozen	3	0	12
Filberts.....	1	lb.	0	6	Pine Apples....	1	lb.	1	6
Cobs.....	1	lb.	0	6	Pumpkins.....	1	sieve	0	0
Gooseberries..	1	bushel	0	0	Raspberries....	1	lb.	0	0
Grapes, hothouse	1	lb.	1	6	Walnuts.....	bushel	5	0	0
Lemons.....	1	100	6	0	ditto.....	1	100	6	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	dozen	2	0 to 4	Mushrooms....	pottle	1	6 to 2	0	0
Beans, Kidney forced	100	1	0	1	Mustard & Cress	punnet	0	2	0
Beet, Red.....	dozen	1	6	3	Onions.....	bushel	2	6	3
Broccoli.....	bundle	0	2	1	Pickling.....	quart	0	4	0
Brussels Sprouts	1	sieve	2	0	Parsley.....	doz. bunches	2	0	0
Cabbage.....	dozen	1	0	2	Parsnips.....	dozen	0	0	0
Carrots.....	bunch	0	4	6	Potatoes, frame	1	lb.	1	6
Capicums.....	100	1	6	2	Potatoes.....	bushel	3	6	7
Cauliflowers....	dozen	2	0	4	Kidney.....	bushel	5	0	7
Celery.....	bundle	1	6	2	Radishes.....	doz. bunches	1	0	1
Coleworts.....	doz. bunches	2	0	4	Rhubarb.....	bundle	0	6	1
Cucumbers.....	each	0	1	6	Salsify.....	bundle	0	1	0
Endive.....	dozen	1	0	2	Scorzoneria....	bundle	1	0	0
Fennel.....	bunch	0	2	0	Seakale.....	basket	1	6	2
Garlic.....	1	lb.	0	6	Shallots.....	1	lb.	3	0
Herbs.....	bunch	0	2	0	Spinach.....	bushel	2	6	4
Lettuce.....	dozen	1	0	2	Turnips.....	bunch	0	3	0
Leeks.....	bunch	0	2	0	Veg. Marrows..	each	0	0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	FEBRUARY 7—13, 1878.	Average Temperature near London.			Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h.	m.	h.	m.	h.	m.	h.	m.			
7	TH	Royal Society at 8.30 P.M.	46.7	35.0	39.9	7	31	4	58	8	49	10	54	5	14	28
8	F	Queckett (Microscopical) Club at 8 P.M.	45.6	32.7	39.2	7	29	5	0	9	1	mo	rn.	6	14	27
9	S	Royal Botanic Society at 8.45 P.M.	45.2	31.8	38.5	7	27	5	2	9	17	0	6	7	14	29
10	SUN	6 SUNDAY AFTER EPIPHANY.	44.6	29.6	36.6	7	26	5	3	9	38	1	21	8	14	30
11	M	Royal Geographical Society at 8.30 P.M.	44.4	29.9	37.1	7	24	5	5	10	6	2	37	9	14	30
12	TU	Royal Medical and Chirurgical Society at 8.30 P.M.	44.8	29.7	37.3	7	22	5	7	10	49	3	50	10	14	29
13	W	Society of Arts at 8 P.M.	44.1	29.6	36.8	7	20	5	9	11	48	4	54	11	14	28

From observations taken near London during forty-three years, the average day temperature of the week is 45.0°; and its night temperature 30.9°.

TUBEROUS-ROOTED BEGONIAS.

PRIOR to the introduction by the Messrs. Veitch of *Begonias boliviensis*, Pearcei, Veitchii, and *rosæflora*, the material for effecting improvement in this class of plants was extremely limited. *B. discolor* (Evansiana) was a popular window plant to my recollection over thirty years ago; indeed it was the only one cultivated for sale in 1827, and Masters of Canterbury in 1831 only enumerates it and *B. argyrostigma*. *B. octopetala*, though introduced in 1835, never came into general cultivation, and is now taking its place in this beautiful class as a new variety, rather species, whereas it appears to have been the first of the introductions from the Andes.

Before the introduction of the first-named four no effort had been made to improve the tuberous-rooted section, though some attention had been given to the type which embraces *B. Ingrami*, *B. Saundersi* (an improved *B. semperflorens*), and *B. Digswelliana*; there being only one hybrid of the creeping rhizome section—viz., *B. hydrocotylifolia hybrida*; and singular enough only one of the semi-bulbous or caulescent section—namely, *B. Weltoniensis*, raised by Major T. Clarke. *B. Weltoniensis*, a cross, I believe, between the caulescent *B. Dregei* (*parviflora*) from the Cape of Good Hope and some pink-flowered species, has become quite as popular a window plant as *B. Evansiana*, and there is no doubt that when the hybrids of the *B. boliviensis* and Veitchii section become better known they will be equally if not more popular for that purpose. The horticultural world is greatly enriched by the possession of this beautiful and useful class of plants.

B. Pearcei sent out in 1866 is very beautiful in foliage, "dark velvety green, traversed by pale straw-coloured veins and the under side of a dull red colour." The flowers are large, borne on slender stems, bright yellow; with a tinge of pink at the base of the segments. It is a fine decorative plant, and in a stove temperature will form in early summer a fine table plant, blooming for many months. It requires a warm greenhouse. *B. boliviensis* attains 2 feet in height; foliage light green; flowers red, very freely produced, generally in pairs, sometimes in trebles. *B. Veitchii*, the most valuable on account of its hardiness; flowers large, vermilion or cinnabar red. *B. rosæflora*, stemless, flowers borne upon erect scapes, large bright rose. Those are the parents of the following very beautiful kinds sent out by Messrs. Veitch:—

B. Sedeni, "a cross between an unnamed species and *B. boliviensis*," having the habit of the latter, with larger leaves; flowers magenta crimson. *B. Chelsoni*, between *B. boliviensis* and *B. Sedeni*, free in growth; flowers salmon orange, and blooms for several months. *B. intermedia*, a cross between *B. Veitchii* and *B. boliviensis*, of erect free branching habit, about 18 inches in height; leaves like *B. Veitchii*, but toothed like *B. boliviensis*; flowers large, very freely produced, rich vermilion red. *B. Stella*, large rosy crimson. *B. Vesuvius*, one of the finest, orange scarlet. *B. Model*, a real beauty as might be anticipated by "inter-

crossing *B. Pearci*, *B. Veitchii*, and *B. Sedeni*," finely-formed flowers, rosy blush. *B. Excelsior*, "a cross between *B. Chelsoni* and *B. cinnabarina*." This blooms as freely as *B. Chelsoni*, flowers light orange, and large. *B. Acme*, robust habit, large orange pink flowers. *B. Kallista*, more floriferous than *Stella*, and deeper in colour. *B. Emperor*, vigorous habit, free-flowering, large brilliant orange-scarlet flowers in large clusters.

In addition to the above we have the following, which are chiefly of continental origin:—Charles Raes, an improved *Sedeni*; Charles Van Eckhaute, white or delicate pink and late; Dr. Masters, carmine crimson; James Backhouse, scarlet or coral red, spreading habit; Paul Masurel, orange scarlet; Bayard, orange; Reine de Bougival, cream; Sunrise, rosy scarlet; Aurora, salmon yellow; Étna, scarlet; *Rosæflora superba*, rose; and Agate, vermilion; also the doubles, Lemoinei, orange and vermilion; Gloire de Nancy, shining vermilion, of erect branching habit, and very free-flowering; Éclatant, pale rose, dwarf compact habit; President Burella, strong grower, deep vermilion; W. E. Gumblerton, pale salmon; and Van Houtte, deep salmon. *B. Froebelii*, scarlet; and *B. octopetala*, large flowers, white, with the reverse of the petals pink, late-flowering, also deserve mention and cultivation, as very attractive species.

It is being somewhat generally asserted that cool treatment only is required for this class of plants, to which I do not demur if the aim be flowers in the open ground, window, greenhouse, or conservatory very late in the season; but those contenting themselves with a display in late summer lose much of the beauty the plants may be made to afford by starting them in a forcing house. Plants so treated flower in May and June, and by keeping them rather dry, yet not so dry as to induce complete rest, the same plants will afford a second bloom little inferior to the first in late summer and autumn. This forcing the plants bear well, particularly *B. Pearcei*, *Chelsoni*, *Model*, *Vesuvius*, *Excelsior*, and *Perle*, the first and last having beautiful foliage as well as handsome flowers.

For this purpose the tubers should be potted early in February, removing all the soil that comes away freely, without, however, stripping them quite bare of the fibres that immediately surround the corms. Pots twice the diameter of the tubers are sufficiently large. The tubers should only be slightly covered with soil. A suitable compost is three parts of turfy loam with one part of leaf soil or old cow dung, and a part of sandy peat, and a sixth of sand. Good drainage must be given, and the soil made moderately firm. Place them on shelves near the glass in a house with a temperature of 65° to 60° at night, or a few degrees lower in severe weather, and 70° to 75° by day, with an increase from sun heat. Apply water very carefully, giving just sufficient to keep the soil moist until growth is made; indeed avoid overwatering at any time, it requiring to be most liberal when the plants are in free growth and coming into flower, at which time weak liquid manure may be given. When the plants have filled the pots with roots shift them into others about 4 inches larger in diameter, and afford plenty of room and light, sprinkling overhead twice a-day, for they like a moist atmosphere, but not a

confined one. When in flower and placed in a warm greenhouse or conservatory the sprinkling should be discontinued, and rather freer watering given. After flowering they are to be dried-off gradually, the pots being placed on damp soil or a moist bottom in a cool house, where they remain until again required; but if wanted to flower again in late summer cut them back and thin-out the flowered parts, returning them to a warm moist house, and they will give a second bloom little inferior to the first. This may be considered an exhausting process, but B. Pearce at least, which I have so treated for seven years, shows no signs of debility.

For greenhouse culture an early bloom may be had by potting the corms early in March and bringing them on slowly in a temperature of 50° to 55° from fire heat, an intermediate house answering perfectly, removing them to the greenhouse or conservatory when in flower; but for simple greenhouse culture they need not be potted until they begin to grow, then reducing the ball, retaining the fibrous roots and reducing the size of the pot considerably, shifting into larger pots as required, giving the last shift when the plants show for flowering. After that is past, which lasts eight to twelve weeks, keep the soil sufficiently moist to maintain the foliage fresh. When indications of ripening set in gradually cease watering. The pots may be wintered on the soil alongside the pathway in a cool greenhouse, plunged in ashes in any place but a dry one, provided they are safe from frost. The tubers must never be kept dust-dry, or they lose their vitality. This over-dryness is not confined to tubers already in hand; it occurs with those purchased. I know many last season had a supply of dry tubers, a large per-centage of which refused to grow; I had some of B. Froebeli which were in that condition, and shall reject such supplies in future.

Begonias of this class do not like a dry atmosphere; they will live in one, but it only results in enfeebled growth and poor impoverished flowers. They do not like draughts or sudden changes of temperature; therefore those growing them as window plants will do well to open the upper part of the window for ventilation preferably to the lower, and not much of either. I saw such a display of Begonias last summer in a miner's window as surprised me, accustomed as I am to plants.

The great merits of these plants are as bedders. In my estimation they are more beautiful than Zonal Pelargoniums and more enduring. Pelargoniums when at their best have every particle of beauty washed away by a few days of wet weather. Not so Begonias; they revel in moisture like all sub-alpines—percolating moisture secured by thorough drainage. Those, therefore, intending their culture (and it will become general) will do well to provide thorough drainage and a sheltered situation, as the plants being succulent cannot stand twisting currents of air and cold positions. They prefer a vegetable soil, and do well in the wide interstices of rock-work holding a goodly amount of compost, in which they may remain permanently, having a mulch over them in winter of cocoa-nut fibre refuse 3 or 4 inches thick.

For summer bedding pot the corms in March, plunging the pots in ashes in a cold frame, keeping close and protecting from frost until growth takes place, then admit air moderately, sprinkling overhead in the afternoon of bright days, closing early. By the middle of June they will be in good growth, and being hardened off should then be planted out. In cold localities I advise their being planted in borders along the sides of plant houses with a south exposure, in which with a covering of cocoa-nut fibre refuse 3 inches thick they will no doubt prove hardy. In wet and cold soils the roots may be lifted after the first frost, and be laid in a shed for a few days to dry, and having most of the soil removed be stored away like Dahlia tubers in sand in a cool place safe from frost, where they may remain until potting time in spring. But an amateur tells me all this "potting and bother" is quite unnecessary, as the Begonias only require the treatment he gives his Dahlias—viz., planting the roots in April 3 inches deep, inverting a flower pot over them until the growth cracks the soil, then removing the flower pot every fine day and night, covering the plants only when there are signs of frost, and "you know I have the best display of flowers of those plants until frost of anybody hereabouts."

A few hints as to propagation. Take cuttings of the young growths when 3 inches in length or with two joints and the growing point, insert them singly in small pots and place in gentle heat, keeping close and moist, but avoid over-watering. Shift them into larger pots when rooted, and being established and hardened-off remove them to a greenhouse, and they will flower and form good tubers by the autumn.

Seeds also are resorted to. It is an interesting mode of propagation. I drain a pot or pan—the former half, the latter a third its depth, with potsherds, place some rough compost over the drainage, fill to the rim with soil, having the surface very fine and even, and give a good watering. The seed is then cast on the surface, and a little, very little, silver sand is sprinkled over it. The pot or pan is placed in a Cucurbit frame and shaded from sun to prevent the necessity for watering; but if the surface be inclined to dryness water must be given very gently through a fine rose. The seedlings are potted off singly when they can be handled, returned to the frame, shaded, and kept moist. When established they are removed to a shelf in a warm house, and have a shift into a larger-sized pot. They flower in late summer.—A LOVER OF BEGONIAS.

VEGETABLE CULTURE.

CHAPTER VI.—BRUSSELS SPROUTS.

THIS vegetable takes its name from Brussels, where it was, and I believe still is, very extensively cultivated. It is one of the oldest inmates of our kitchen gardens, records being made of it in the early part of the thirteenth century. Although the Brussels Sprout is considered an indispensable vegetable in large gardens, it is frequently not grown at all in small gardens, which should not be the case, as few vegetables are more acceptable or can be grown more remuneratively for autumn and winter supply.

In exceptional instances the seed is sown in autumn to furnish young plants for transplanting from the seed bed early in spring; but I have never found this plan answer better than sowing in spring, and we always adopt this system now with the best results. When the Sprouts are wanted, say in September, a pinch of seed should be sown in a box the first or second week in February. A box 2 feet square will produce many plants. The seed may be started in gentle heat, but as soon as the young plants are 2 inches high the box should be placed in a cold frame and remain there until the plants can be fully exposed, and when quite hardy, they may be dibbled 4 inches apart into some good soil in the open air. With good treatment these plants will be ready for transferring to their bearing quarters in April. With this, as with all other vegetable plants raised artificially, it is of the utmost importance that the young plants are never allowed to be drawn up long and spindly by being grown too closely together or any other cause. It may be remarked that those who do not possess frames or houses in which to start early vegetables will find the different kinds of plant protectors now so much advertised answer the purpose very well.

The first sowing of Brussels Sprouts should be made in the open ground about the middle of March. The situation of the seed bed should be open and the soil free and rich. It is scarcely necessary to give particulars on this head for every crop, because the best way is to select and set apart a small piece of suitable ground on which all the seeds from which plants are required for transplanting should be raised. Our piece of ground for this purpose is about 12 yards across and double that in length. Supposing we sow at the same time such seeds as Cauliflower, Broccoli, Brussels Sprouts, Cabbage, Savoy, &c., a bed 3 or 4 feet wide is marked off across the narrow way of the piece, and this long bed is subdivided into a number of small beds, generally about 2 yards long. A different vegetable or another variety of the same vegetable is sown on each of these, and beds of successional sowings follow one another.

In sowing Brussels Sprouts the surface of the bed should be broken moderately fine, and after the seed is sown cover it with about half an inch of soil, and beat it down with the back of the spade. The means previously advised to prevent the birds from destroying the seed should be attended to in the case of this and all other seeds of this tribe. The plants from this first sowing will be ready for transplanting in May. When the plants come up very close together the largest of them may be drawn out and be planted first, and the smaller being left for two or three weeks longer to form a succession. The seed to supply the latest plants should be sown about the end of April. It must be treated in all respects like the first; but if the soil is very dry when the plants are quite young they will be much benefited by watering, and this should be repeated when necessary. Plants from this sowing may frequently be planted on ground recently cleared of early Potatoes. In such a case the ground need not be dug but

merely levelled; but should the young plants become crowded before the ground is ready for them, the largest of them should be drawn out and planted again 4 or 5 inches apart. In lifting young plants when the soil is very dry the ground should be thoroughly saturated with water the night previous to removing them from the seed bed. When the young plants have been brought to a transferable size their after-cultivation is simple enough. They succeed best in a moderately firm soil not overful of manure, as a firm growth is more desirable than a large quantity of tender leaves. We never plant further apart than 2 feet. The plants grow about 18 inches high, and are always surrounded from top to bottom with dozens of Sprouts as close as they can grow. When the latest plants cannot be lifted with balls they should be watered twice or three times a week after planting them in hot weather until they begin growing. Snails are ready enough to destroy the plants if not looked after. The Dutch hoe must be run through the ground frequently until the plants are ready for earthing-up, when the soil should be drawn firmly to each plant. In autumn the decaying leaves should be gathered frequently, as they fall down on the Sprouts and cause them to decay. The Sprouts should not be used until they have folded quite hard, and they should all be gathered before they begin to open again, which they ultimately do. Medium-sized Sprouts are preferable to very large ones. The best varieties of the Brussels Sprout are Dalmeny, Dalkeith, and Roscherry. The "Giant" Sprouts of the leading seedsmen are all good, and very useful are the Albert Sprouts.—A KITCHEN GARDENER.

DUKE OF BUCCLEUCH GRAPE.

We have not heard quite so much about the character of this Grape as we have of its sister variety Golden Champion. I was pleased to read that your correspondent "COLUMBUS" has succeeded in growing "The Duke" so as to give so much satisfaction to his employer. I do hope that he will also succeed in growing it equally well when he has planted a house of this sort alone. I would advise him to plant a few Black Hamburgs along with the Duke of Buccleuch in case this variety should not succeed so well as he expects. I believe this variety was sent to Covent Garden before it was sent out. But is it sent there or to any other market in quantity now? When Golden Champion was sent out it was thought by its raiser and others that it would be a white companion to Black Hamburg, with a constitution like that sort, and requiring no more care in its culture. I fancy the same expectations were raised in respect of Duke of Buccleuch. Now I venture to say, that if the gardeners of England and Scotland who have grown this Grape were invited to give their opinion as to whether these expectations have been realised, very few would say they were. That it is a noble Grape when well grown no one will deny, but I believe gardeners who have not been able to grow this Grape satisfactorily are not unlikely to incur the displeasure of their employers when they read that the "Grape will succeed when it has the same chance as well-cultivated Black Hamburgs."

Now I have given it the same chance as well-cultivated Black Hamburgs, and have grown it alongside Buckland Sweetwater. I find that Black Hamburg and Buckland Sweetwater succeed well and finish off good crops of excellent Grapes annually. I was anxious to grow Duke of Buccleuch in this house, thinking it would be better than Buckland Sweetwater for exhibition, but in that I have been disappointed. The berries spot, crack, and decay before they are quite ripe, and the atmosphere of the house has been kept drier than I like purposely to suit His Grace. The Vine in question was inarched on a free-growing Black Hamburg. I did not try it in any other house, thinking it best to see how it behaved first, and did not think it wise to try it further. I grew Golden Champion in three houses, ripening it at different times, and it only did fairly well in one house, so I have cut it out from the other two. My own impression about the Grape is, that it can only be grown well if the utmost care is taken. I trust your correspondent is aware that head gardeners cannot be in their vineries night and day; in most cases they have to trust the work almost entirely to young men of limited experience, and they have sometimes to change the person in charge when the fruit is in course of development.

Your correspondent says the Grape will not succeed "under a system of steaming, damping, and syringing, now abandoned by all who produce good Black Hamburgs." Is your correspondent prepared to reiterate this statement, and to say that

he does not produce any moisture in his vineries from evaporation? That is what he does say, and as a Grape-grower of considerable experience I must say the system is quite new to me. Perhaps I should not have noticed your correspondent's letter if he had not stated that the old system of growing Grapes had been abandoned by all good growers for the new one of no atmospheric moisture at all.—J. DOUGLAS.

JUDGING ROSES.

I HAVE read with much interest the various letters in the Journal on judging Roses, and have been a little surprised at the variety of opinion evinced; but no one's ideas strike me with the amazement that my good friend Mr. Curtis's do. I am exceedingly grieved to have to differ with him on any point of Rose culture, but as this is a matter of the greatest moment to Rose exhibitors I cannot resist giving my opinion on the matter. Mr. Curtis's idea is to my mind simply impracticable. It is all very well in theory, but in practice impossible. In the first place, Where are all the judges to come from? The leading exhibitors and say half a dozen outsiders will furnish twelve judges, and that is all that is or can be required.

At our great meeting at St. James's Hall there was no delay in the judging, and there were I believe only twelve judges, or at most fifteen; six for the nurserymen, three for the amateurs, and three for the open classes. I am not sure whether those who judged the open classes also judged the small amateur classes, such as twelve and six varieties, but I think they did. Nothing could have been more successful than the plan then carried out, and I do not see what case has been shown to induce us to alter it. The system of cards alluded to by Mr. Curtis is the most bewildering one I have ever heard of, and the whole plan would take far more time than could possibly be allotted to it.

What system can be better than that usually adopted at exhibitions? There are three judges to each great division of the schedule. Say we are judging a nurseryman's seventy-two. We begin by counting the good blooms. Each judge takes it in turn to count, the other two judges stand behind him and stop him when they do not agree. When there is a difference of opinion, if two of the judges say the bloom is a good one it is counted, if only one it is not. Then we go to the next stand, marking down on a piece of paper the numbers. Next we count the bad blooms, and the work is accomplished. Generally the first prize is a very simple matter; it is when we come to the second, third, and fourth that the tug of war commences. After we have counted both the good and bad, and the stands are so even that we cannot separate them, then we must look to what I may call the accidentals of the stands. One is more even, another has fresher blooms, or another has greater variety; all these are taken into consideration. Oftentimes all the boxes of blooms are placed together, and are viewed at close quarters and from a distance, and the result is that I have never heard any dissatisfaction expressed (except on one occasion) by the great nurserymen after such an exhaustive judgment. But here no doubt someone will say, "My dear sir, you are begging the question, you are arguing on a false issue. It is not the plan of judging that we are so much exercised upon, but the canons or rules. You say we count the good or bad blooms; all very well, but we want to know what are good blooms, and by what rules you determine such a momentous issue." Well, I have no objection to show my hand and to state boldly in print what I consider constitutes a good bloom, fully conscious though I am that I am laying myself open to criticism.

First, then, I and the judges with whom I have most often acted consider form as the great desideratum of a Rose. Not size—far from it, but form, or if you want even a plainer word, shape. Every Rose to be accounted good must have this; next colour, then freshness, next substance, and lastly size.

If I am asked what I mean by form, I would say symmetry. It may be globular, or cupped, or even expanded, but it must be symmetrical. Its eyes must not be in one corner for instance, or it must not have a bunch, or tie, or knot, as if something had disagreed with it in childhood. It does not follow that it must be large. Blooms of Duke of Wellington are never large, and yet there are few judges who would not count them good if they possessed the other qualifications.

The colour must be fresh and bright; it need not, for it rarely is, so dazzlingly vivid as the blooms which Mr. Baker brings up to town, for the secret of obtaining that colour is only known to the inhabitants of that terrestrial paradise Heavitree.

"They do say, sir," said my man to me when discussing the question how he obtained that colour, "that he gives them 'ops," and I believe no better (?) solution than this has yet been found.

The blooms must be even. We must not have a gigantic Paul Neyron that, to use an American expression, appears to "have been under a quartz crusher and then boiled for a month," and next to it a puny bloom of Comtesse de Chabillant; and each bloom must present itself to our eyes under the most favourable circumstances. It must be well set up, have its proper amount of foliage, and be a good specimen of the variety.

I shall be interested to see what rules are laid down by the Executive Committee of the National Rose Society, which I suppose will in due course be laid before the General Committee; but I shall be very much mistaken if some such table of virtues as that I have tried to describe is not adopted.

Where and where only competition is so close that we cannot otherwise decide, the system of giving points is no doubt the best plan that can be adopted; but it is a very tedious one, and should only be resorted to as a *Deus ex machina*. Three judges discuss each Rose, giving three points to a very good one, two to a good one, and one to a moderate one. It is evident that a discussion may be raised on each Rose, so that such a system should only be employed when all others fail.

I have written these notes in the hope that they will provoke discussion, and that they will afford a basis upon which Rose-growers may express their opinions. I am aware that there is a feeling abroad that some rules as to judging are to be desired, but I must say such an idea is not shared in by a—WYLD SAVAGE.

EVERY rosarian will, I think, agree with your able correspondent "D., Deal," that it would be very desirable that some broad general rules for judging should if possible be laid down by the National Rose Society. But how difficult a task it would be to frame a code of rules that would fall in, even approximately, with the views of say a dozen of the leading Rose judges? There would be, I suspect, a good many dissentient voices to his proposal, for instance, that no points should be reckoned in favour of Teas because they are Teas. I venture to differ entirely with "D., Deal," on this point. To my mind the presence of a few charming Teas in a box suggests at once that it belongs to a real lover of the Rose and not to a mere exhibitor (and, believe me, there are pot-hunters even in the Rose world), as they are evidences of a greater amount of skill, care, and attention than is required to produce correspondingly good blooms of most of the Hybrid Perpetuals, and in my opinion they deserve a greater number of points in consequence. It is true that, as your correspondent says, the growers in Devonshire and Cornwall have an advantage in this respect over the rosarian in sterner climates; but surely no rules could be framed whereby the advantages which soil and climate must necessarily give to the growers in the more favoured localities could possibly be neutralised, nor do I think it desirable that they should be.

As regards the freshness of the blooms. It is greatly to the credit of exhibitors who have to bring their flowers on perhaps a hot July night two hundred miles, and to shift them about from rail to cab, &c., if they can stage a box of Roses in the perfect freshness of their beauty; but if several of the blooms, after having borne the heat and burden of the night, are a wee bit *passé* it would be a very difficult thing to have to make an allowance for them on account of the journey they have undergone; and unless this were done, if colour be a point in a Rose, the exhibitor who is on the spot must, from the superior freshness of his blooms—like he who is in the best climate or on the richest soil—inevitably have a decided advantage over him who competes under less favourable circumstances; and I think it would be found hopelessly impossible to draw up any code of rules which would place all the exhibitors on an equal footing. The merit of a first prize is in proportion to the difficulties to be overcome in gaining it. A. G. S., *Irnham*.

CAULIFLOWER CULTURE.

LAST spring, owing to the excessive wet of the winter months, Cauliflower plants were extremely scarce in this locality. In conversation with two or three more gardeners interested in the subject Mr. Brunton, gardener at Gilmerton near Drem, stated that he annually raised thousands of plants in cold frames,

the seed being sown in October, and at the usual planting-out time the plants were superior to plants raised by other means. Last autumn, owing to the extreme rainfall and partly to the seed not being good, our out-of-door sowing was next to a failure, and in thinking over the best means of making good the deficiency the conversation above noted came to mind, and late in October a sowing of Cauliflowers and Brussels Sprouts was made, and the plants have every appearance at the present time of being very valuable. In the course of the same conversation another gardener remarked that he had kept Cauliflowers for a considerable time by cutting the heads off with a short piece of stalk attached, and which were planted in sand in a cool moist shed. I have not tried this plan, and now-a-days when such good late sorts as Autumn Giant Cauliflower and Self-protecting Broccoli are to be had it is not of so much consequence. I may mention that I have not had an Autumn Giant to cut in the past season, and a large grower close by has the same tale to tell of it. May the plants be expected to form heads this summer?

I have tried covering the seed beds with mats, as recommended at page 61, and find it a sure means of raising seedlings during hot weather; the mats are also a thorough protector from birds. In our light soil I prefer planting before the seedlings have attained to half the size recommended by "A KITCHEN GARDENER." A row of Lettuce between each two rows of Cauliflower, Brussels Sprouts, and Broccoli I find of service to preserve the permanent plantings from the ravages of pigeons, and in heavy soils where slugs are often destructive I think the Lettuces do much good in attracting them from the main crop. The Cauliflower is such a highly esteemed vegetable that I am sure the contributor of the practical notes on its culture will excuse me for making these supplementary remarks.—R. P. BROTHERSTON, *Tynningham*.

THE RASPBERRY.

I WISH to say a few words in regard to this fruit, because I scarcely think it has received sufficient attention at the hands of the horticulturist. Its varieties are not many, even when all are diligently put down, as in "The Fruit Manual," and even there, where their numbers are printed every one, they barely fill four pages, whereas the numbers of the more aristocratic Strawberry fill thirteen pages. Of course I do not say that the Raspberry is equal to the Strawberry. Art has done more for the latter, and the grander kinds have departed further from the original type. Then, the Strawberry can easily from its habit be forced, but with the Raspberry this is impossible. Allowing all this—allowing that no dish of Raspberries can equal in appearance one of Strawberries—still I think the Raspberry has not had sufficient pains bestowed upon it. Too often any out-of-the-way corner was and is deemed good enough for its growth, and the wrong system of growing is pursued. Thus the canes, too many in number, were closely twisted together, many fruiting buds being thus rubbed-off or crushed, also no light let into the canes, and worst of all the owner or jobbing gardener diligently once a year dug the ground deeply and brought to the surface and barrowed-off to the refuse heap great quantities of roots; and the old stools were left standing high up like islands, with no roots save those immediately under them. Then there is the blackbird-and-thrush-encouraging plan of growth—viz., bending the canes into arches. This is a plan so kind to the birds, to which it gives a series of pleasant perches whereon to sit and eat and enjoy the fruit. An old-blackbird might probably be heard in bird language (not understood by us poor human beings), might, I say, be heard telling the younger generations that "though man is bad, and the man-gardener the worst, yet something may be said for even that hard-hearted gun-discharging animal, for he does leave us the Raspberries and kindly bends them into perches for us to swing on, and sing on, and eat and be thankful."

So much for the wrong ways of growing this fruit. Now for the only right one, and, by the way, in this world in everything there is only one right way, and that is the best way. Some ways may be better, but why not always adopt the best? I have before now been very angry with doctors, whom as a country parson I often meet in a sick room, who are accustomed to say, "Well, I have tried so-and-so" (doctors are always confidential to me), "and now I am going to try so-and-so with your poor friend upstairs, and if that does not answer why I must try so-and-so, and that I am sure will." I always add, "Why don't you try the infallible cure at once, and why didn't you do so at first." The doctor looks puzzled, searches for an

answer, does not find one, and wishes me a very good morning. So I say, Find out the right way—the one right way, and the best way surely at the same time.

As to Raspberries, I have seen people train them fan-wise to sticks. I have seen others have a stake at each end of a row of canes and tie a long lath from stake to stake horizontally; but this blows about, is very unsteady, and the whole thing soon rots. Very fair kinds of cure are these, like the doctor with his first two remedies.

Now for the infallible one. Choose a fairly good piece of ground; if under the shade of trees never mind, for our humble friend the Raspberry naturally takes shelter under some growth more imposing than itself. Clear the ground, manure it, and be sure no Raspberries have been ever planted there before, because they in time "grow sick of the same soil." Draw a straight line for a row. At the one end put a stout post (3 feet 3 inches above the ground), a similar one at the other end, and one or two, according to the length of the row, of slighter dimensions between. Run along a bit of galvanised wire, such as used for hanging clothes on, about 1 foot from the ground, and another about half a foot from the top of the posts; then plant single canes a foot apart all along one side of the wire, passing each cane in and out of the wires for support. You may have as many rows as you require by simply repeating this system. I don't think there should be less than 4 feet between the rows. This is the best plan for growing this fruit, and all others are very second-rate. Each bud has a fair chance; light, sun, and air are admitted. The birds have not so good a chance of hiding as if the canes were straggling about, and old birds have a habit of hiding instead of flying out when the boy or man shouts to clear the garden. Then perch on them they cannot as readily as when bent into arches. The whole, too, looks neat and tidy, and above all the fruit can be gathered readily and no canes trod upon.

I have seen an enlargement of this plan as follows:—A row of Raspberries planted as I recommend, then some rows of Currant bushes, also Strawberries, then another row of Raspberries. The posts, instead of 3 feet 3, being 6 feet high, and a light framework passed from post to post, the whole covered at the fruit season with fish netting. The owner of the garden told me he more than paid his expenses the first year, for he had a choice lot of Currants hanging very late, and all Raspberries, Strawberries, and Currants free from bird or boy depredations. The height of the whole enabled a grown person to go inside without stooping and gather the fruit comfortably.

I have spoken of the few varieties of the Raspberry; the question naturally may be asked, "Which are the best?" Of Reds, Carters' Prolific and Fastolf, also Northumberland Fillbasket and Red Antwerp, but my judgment inclines to the two first named. As to yellows, I know none so good as Sweet Yellow Antwerp.

The Raspberry delights in rich and damp soil, and no Raspberries I have ever seen equalled those grown in the fens; not, indeed, on peaty soil, but on those gardens in the fen towns and villages, which were naturally built on the islands in the fens to which the waters never or only partially extended, and where the subsoil is often, but not always, gravel; but whatever the subsoil, the soil above is deep, damp, and rich, partaking something of the fenny nature of the district around.

The autumn bearers I tried, but gave up some years ago. The Raspberry, next to the Apple, is especially a poor man's fruit. I know of cottagers who make from 30s. to £2 (a nice help towards the rent, by the way) each year by them, but then the children drive off the birds industriously, opening their mouths to shout and not to eat.

The uses of this fruit are various. Though not quite going so far as an old lady who used to declare "she always grew fatter during Raspberry time" (she was of the bag-of-bone style of beauty, always to my boyish idea), still I think the fruit is nutritious. Then no Currant tart is worth much for flavour unless it has a few Raspberries among the Currants. Each year I enjoy my tea the more when Raspberries crushed by a silver fork, and with milk (cream if you can get it), and sugar are added. They make, too, better jam than Strawberries, for Strawberry jam is sickly stuff. Then there is another use never to be forgotten—the sickroom use. Yes, never forget, my richer readers, to make every year plenty of Raspberry vinegar; put it in a number of small bottles, and when you hear of a case of sickness among your poor neighbours put a bottle in your pocket and send it up to the patient. Oh! the refreshment to the parched mouth and lips that a spoonful, often repeated, of Raspberry vinegar and water affords. What-

ever you forget of this paper of mine don't forget this part. I learnt this, as I have learnt almost all that is kind and good, of a woman. I looked out a lady's jam cupboard, saw rows of little bottles, and asked what they were. "Raspberry vinegar for the poor" was the reply. I made a note of that; you, good reader, make a note too.

In conclusion, I will add a little historic account of this fruit. Says old Gerard, who wrote A.D. 1633, "The Raspis (the Wiltshire peasant still calls them 'they Raspes') or Framboise bush, with leaves and branches not much unlike the common Bramble, but not so rough nor prickly, and sometimes without any prickles at all, having only a rough hairiness about the stalks. The fruit in shape and proportion is like those of the Bramble; red when they be ripe, and covered over with a little downiness; in taste not very pleasant." Old Gerard is speaking here surely only of the wild Raspberry. "The root creepeth far abroad, whereby it is greatly increased. This grows with prickles on the stalks or without them. The fruit is usually red, but sometimes white in colour. The Raspis is planted in gardens; it grows not wild except by a village near Blackburn in Lancashire. I found it also in a field two miles from Nantwich in Cheshire. The Raspis is called in Latin *Rubus idæus*, from the mountains of Ida, on which it groweth. In English Raspis, Framboise, and Hindleberry. The Raspis is thought to be like the Bramble in temperature and virtues. The fruit is good to be given to those that have weak and queasie stomachs." So much from old Gerard. In truth the Raspberry is a native of England, and may be found wild as near London as Weybridge, and grows wild most plentifully in Scotland.—WILTSHIRE RECTOR.

TRANSPLANTING AND RETARDING BROCCOLIS.

ALL varieties of Broccolis bear removal well during the autumn and after the plants have attained their full growth. I have removed thousands of plants about the end of October or early in November; in fact I adopted the plan for nine years as a part of the season's routine, and found the advantage of it in three ways—1, Securing an important crop from frost; 2, Retarding the plants and providing a longer supply of heads; 3, Turning ground to account that otherwise would have been occupied for six months longer by the Broccolis.

In the district where I was then engaged (Lincolnshire) the winters are occasionally very severe, and I have often known all the Broccolis in the neighbourhood killed unless some means had been adopted for protecting them. Indeed so uncertain is the crop, owing to the severity of the weather, that some of the best market gardeners of the district have ceased growing Broccolis, finding that it was not remunerative to have the ground occupied by an exhaustive crop that was so liable to be destroyed. By the system of transplanting similar to that alluded to on page 92 by Mr. Boyd I never failed in producing a full supply of this staple vegetable, and for three consecutive years I was never without Cauliflowers, including Broccoli, although I grew no Cauliflower plants under handlights.

As was mentioned on page 82 by "A KITCHEN GARDENER," Broccolis to insure a hardy growth must be grown thinly in a very exposed position. I do not quite agree that they require deeply dug and heavily manured ground, because, in the first place, such ground promotes succulent growth, and secondly, produces heads too large for a gentleman's family. The heads which I have always found to be the most highly appreciated were close, white, fresh, and moderately small.

In order to secure a hardy growth I planted the Broccolis in a field where the ground had been worked by the plough and had received no special manurial application. The plants were placed fully 3 feet apart. This distance permitted a free and full circulation of air amongst them throughout the growing season, which, with the moderately fertile and firm soil, produced dwarf woody stems very different from plants grown more closely together in the rich trenched ground of a sheltered garden. Broccolis thus grown in a field might safely have been left to pass the winter there, for they were so hardy in their nature as to resist even severe frost; but they were not safe from stock, rabbits, and even rats, which will travel a considerable distance to eat out the hearts of the plants during severe weather. The plants were therefore removed by cart-loads and laid closely in trenches in the garden on ground afterwards to be occupied by Celery or late Peas. Broccolis that had at 3 feet apart occupied half an acre of ground were thus accommodated in a very small quarter of the kitchen

garden, and the larger space of ground previously occupied was thus at liberty for being prepared for the succeeding crop of Carrots. A few days' work, therefore, effected a great saving of land. The economy of the practice of removing the plants in the autumn when they are grown in the garden is at the least equally great, for a considerable extent of ground is cleared in time to be prepared for Potatoes, Peas, and other crops that require planting or sowing earlier than the period at which late Broccoli is cut, while the plants removed can be accommodated in a much lesser extent of space than they previously occupied. This is a matter of great importance where garden ground, as is frequently the case, is limited while the demand for vegetables is great.

When the plants are grown in the firm soil of the field they remove with large balls and sustain only a slight check by removal, but when grown in the deeper, lighter, richer soil of the garden only a comparatively small quantity of roots and soil can be secured. In this case I have often covered the roots with a layer of decayed leaves or light vegetable soil before banking them up, which quickly induces fresh root-action, and the plants have always produced sufficiently large heads in the spring. The check caused by removal is beneficial rather than otherwise, by enabling the plants to resist extreme frost better than when it overtakes them suddenly when they are in a more active growing state.

A portion of the valuable early Broccoli (Snow's Winter White) was planted where it could remain to produce heads as early as possible, while another portion was removed, and the check given retarded the heading and afforded a succession. A portion of a second early variety was similarly treated, otherwise there would have been a failure in the supply towards the end of February; after that an abundance of heads were always certain until the supply ceased. By lifting in autumn plants of the latest varieties and layering them in the coldest situation at command—a shaded north border—I have cut heads until the 18th of June. That proves the advantage of autumn-lifting; the plants could not have been grown in the north border, for without that cool site an unbroken supply of Lettuces, Radishes, and Cauliflowers could not have been maintained during the summer.

I agree with "A KITCHEN GARDENER" that, as a rule, the period of Broccoli heading is not greatly influenced by the time of sowing the seed; yet to that rule I have found an exception and a valuable one. If ten different varieties are sown about the middle of March and another sowing is made of them a month afterwards there will be no appreciable difference in the time of heading; but if the second sowing of the latest varieties is deferred until the first day of June the plants head, if they head at all, decidedly later than those sown at the orthodox time. The plants from the late sowing are small and the heads are small; they may not exceed 3 inches in diameter—just the size that ladies, gentlemen, and cooks particularly appreciate for the dining-room; so indeed does the gardener when he has a plentiful supply of them in June. I have more than once cut Carter's Summer and Cattell's Eclipse Broccoli in the month named, but I could only do so by sowing the seed in the early days of the previous June; and after the plants had attained their season's growth by digging them up in the autumn and layering them in the north border. I ask "A KITCHEN GARDENER" to try the same plan with the excellent late varieties he has named.

So admirably did the firm soil and open field exposure answer for the cultivation of Broccoli and winter greens generally in promoting a woody and consequently hardy frost-resisting growth that eventually a portion of a field was fenced off for the purpose of growing those and other crops, where the Broccoli could remain to produce heads or be removed as was most convenient. By growing Broccoli both in the open field and sheltered garden I found what I did not expect to find—namely, that Snow's Winter White produces heads sooner when grown in the colder poorer field than in the warmer richer garden. The reason, I suspect, is that the plants in the former case with their hard stems and short leathery leaves were better matured than their longer-legged and more succulent congeners.

Owing to the prolonged mildness of the present winter Broccoli will probably be early, and the supply of them will be over much sooner than is convenient; it is therefore worth considering whether, even now, it is not desirable to dig up a portion of the plants and lay them in a north border or other cool place by way of retarding them. The heads would no doubt come smaller than if the plants were not disturbed; but

a supply of small heads is better than no large Broccoli. —J. WRIGHT.

MR. JAMES BOYD wishes to know whether the transplanting of Broccoli in autumn is general. I can recommend it as one of the best practices in the kitchen garden to have a good supply, for by doing so plenty come in a month later than if they were to remain where they were first planted. But I would advise one-half of each variety to be transplanted with plenty of manure in the trenches, which will require to be 2 feet apart each way. To insure them to come fine and white they ought to lean with their heads to the north, to keep the rays of the sun from the crowns, and if tied round with bast matting similar to Cos Lettuce, they will be as white as snow in the month of May.—WILLIAM GAIN, *Lymwood*.

NEW BOOK.

The Amateur's Kitchen Garden, Frame Ground, and Forcing Pit. By SHIRLEY HIBBERD. London: Groombridge and Sons.

This volume forms part of a series of gardening books for amateurs which the author has from time to time produced, and which have met with a considerable amount of public favour. This is certainly not the least useful of the series; it is also attractive, for it is well printed on toned paper and contains plans, diagrams, and illustrations elucidatory of the text, and also a few too highly coloured plates. These were, perhaps, included with the object of lightening the subject matter of the book, which the title might suggest as being somewhat heavy. Kitchen gardening is proverbially hard work. It consists largely of digging, trenching, and manuring; and while such branches of practice are thoroughly described, they are not treated in a manner so as to produce the backache in reading about them. The book is not by any means dull and dry, but is such that an amateur gardener might rest over—that is, read with pleasure even when fatigued after a hard day's labour. In this respect it differs advantageously from the usual style of kitchen-gardening books which are rather profusely issued from the press; yet while the style is free and pleasant the practice detailed is sound.

Besides treating briefly on the principles of kitchen-gardening, such as site, form, character of soil, &c., there are chapters on pits and frames, protecting, soils, manures, and the cultivation suited to crops of vegetables, herbs, and fruits usually found in moderate-sized gardens. These chapters are concise, and the instructions given are explicit. The selections of varieties are judicious and far superior to those given in a bulky volume recently issued, which was once a standard work. The author of the "Amateur's Kitchen Garden" has not fallen into the common error of recommending the Mazagan Bean as the best early variety, but correctly describes it as a "poor thing, but early." We agree that it is little better than a Horse Bean, but have never found it so early as the Early Longpod. The author's practice on Broccoli culture having been gained in the south he has not experienced the difficulty of preserving that important crop through the winter which is so hard to accomplish in northern districts. He has never found it necessary to lay the plants down, but he has found the value of sprinkling the ground between the plants with salt at the rate of ten or twelve bushels to the acre. Others who adopt this practice will find the value of it too, for, as the author observes, "it is certainly not a waste of labour or of salt, for the result is a wholesale destruction of vermin and a consequent protection of the plants from their ravages during those mild winter and early spring days, when slugs and other such come forth in troops and eat out the hearts of the best vegetables in the garden. It is worth remembering, too, that the salt is worth its cost as manure, and its presence in the soil will benefit the next crop." When the author found in his trials that Snow's Winter White Broccoli was in use from April 2nd to April 16th we think he had not the true variety, or the trials were conducted during an exceptional season. We usually cut heads of this variety in January.

The practical nature of the volume will be best exemplified by a few further extracts. Alluding to such necessities as walls and fences, low walls for fruit trees, which have recently been advocated in a sensational pamphlet, are rightly denounced—negatively, it is true, but none the less emphatically by the following sentence:—"The minimum height for a wall to be of any use in fruit-growing is 8 feet." Such a wall the author goes on to say "should be 9 inches thick, and have a coping

projecting forwards. If from 8 to 14 feet the thickness should be 13½ inches, and the coping 6 to 8 inches. If from 14 to 20 feet the thickness must be 18 inches, and the coping should project at least a foot. Hollow walls are formed by placing the bricks on edge alternately with their faces and ends outside, so that every second brick is a tie, and every course alternates in the order of facings, so that every end comes over and under a full face. By this means a 9-inch wall of great strength is obtained, and a considerable saving of bricks is effected.

"When a live fence is preferred to a wall the question will arise, What shall it be? Thorn is the quickest and cheapest, and if well arranged makes an effectual fence, but it is not well adapted for a garden. Common Privet soon makes a dense evergreen boundary, useful alike for shelter and to impose a check on thieves, especially when it obtains a height of 6 or 7 feet. The beautiful large-leaved Privet, *Ligustrum ovalifolium*, is as fast-growing and handsome a plant as can be used for a garden fence, and will cost but little more than the common Privet. Everybody knows that Holly is the finest of all boundary plants, but it should never be planted by a tenant at will unless the landlord is willing to pay for it, and in every case it will require the growth of years to thicken into a barrier and make a fair return for the money and labour invested in it. For general purposes common Privet is the very best of boundary plants for enclosing a garden, for it is not only evergreen and grows as close as a mat if planted thick enough, but it soon gets up to a useful height, so that no one can see through or over it."

The subject of edgings for walks and borders is admittedly a perplexing one to many amateurs, and, as the author sagely remarks, "one way out of the difficulty is to do without edgings;" but he does not leave the matter there. After a favourable word for the good and well-tried Box edging, and an unfavourable one for many edging tiles, which "split into fragments after hard frost," he says, "There cannot be a doubt that in a majority of cases a plank on edge fixed to posts driven down at distances of 8 feet or so, is the best possible edging for a kitchen garden. The paltry lath sort of stuff we sometimes see is not to be considered plank on edge. We want planks 1 inch thick and 4 to 9 inches broad, and they should not be sunk into the ground at all, but the border should be made up to them. The top edge may be rounded, and that is all the fine art possible, unless it is determined to pitch or paint them. Finally, a substantial stone moulding is the proper thing, and happy, in one sense at least, are those who can afford it."

The practice of growing fruit and vegetables on the same plot of ground is described as a mistake because it is unprofitable, and a variety of modes of associating these two branches of gardening are suggested; but fruit trees on lawns and in shrubberies are not considered incompatible. On this subject, which is now receiving the attention of our readers, we cite the following:—"It must be understood at starting, that while some kinds of fruit are decidedly ornamental, others are as decidedly not so. All the most valuable household fruits—Apples, Pears, Cherries, and Plums, are decidedly ornamental, and adapted to embellish the lawn and shrubbery, and give shade to the summer house and the croquet ground. There are several kinds not usually regarded as proper to the fruit garden that would be both useful and ornamental, as, for example, the *Siberian Crab*, which is one of the most beautiful of trees, and its pretty fruit makes a good preserve. All the varieties of Nuts are handsome, and make nice lovers' walks. For particular positions the Purple-leaved Filbert is well adapted, the leafage being of a rich bronzy-green colour and the nuts of excellent quality. Those who wish for ornamental trees that will contribute to the comfort of the household may easily find them, and we are quite sure no one will dispute the proposition that decorative horticulture might derive considerable aid from the trees and shrubs that belong technically to the fruit garden."

The closing chapter is headed "Reminders of Monthly Work." The twelve articles are, as they should be, short, and are interspersed with seasonable hints. We recommend the book as one from which amateurs and even professional gardeners may derive reliable information, which is the more acceptable as it is conveyed in an entertaining manner.

KEEPING GRAPES—DEW.

YOUR correspondent, "A NORTHERN GARDENER," in my opinion has made a very fair case in support of the above theory, but we want something more practical, for in my

opinion the dew theory will not serve any useful purpose if it is acted upon. Certainly I have observed a fine bunch of Muscats sooner blemished than otherwise would have been the case by artificial dew in the house in June for the want of air being given in time and sufficient. Through this, which everyone knows, and the berries of the bunch being too close, they damped a bit so as to disfigure the bunch. If air had been given and the house been dry this, I believe, would not have happened. After syringing Vines in the swelling state too, if the water hangs on too long on the bunches, it will cause the berries to damp in that early stage.

I believe it is from the soil that the difference is produced in the fruit of different places as regards the keeping qualities of the Grapes, and Muscats especially. I have kept Muscats into March at my present place with as much ease as I have had them in my last at Christmas, and I believe it is, as just said, from something in the soil that causes this difference. And the practical deduction I take out of such a case, which is not the first to my knowledge, is this—that in some places Muscats can be depended upon and can be recommended for good white late Grapes, and in other places they will not keep long enough, and the only safe way to prove the matter is by experiment.

My main reason for doubting "A NORTHERN GARDENER's" theory is the keeping qualities of Muscats, the products of different places, good keeping and otherwise when cut and under cover. The same character of fruit was the result when dew was not near them—in a room. If it was, then both samples were under the same influence. This being the case, one was much better keeping than the other, and the worst keeping was the best coloured. This shows that it is a condition of fruit that favours good keeping; but perhaps other correspondents may be able to throw a little more and better light upon this subject than I can.—R. M. R.

I WRITE to explain that this is the most constantly changeable climate I ever practised in. It is constantly oscillating between the very mild and very cold, and everyone who comes here from other districts remarks on this feature of the valley of Drumlanrig. It has excessively hot days followed by singularly cold nights; and if at any time the frequent variation of temperature is conspicuous it is in autumn—at the most critical stage for decay in Grapes. I never saw such heavy dews anywhere, nor so many hoar frosts. Your correspondent must not retain the impression that because we have so much cloud it is not frequently alternating between two extremes. The effects need not be described. Under glass and outdoors the condensation of moisture on every leaf, twig, and bud is most remarkable. I never was so lax and lenient in regard to temperatures in glass houses simply because the weather is so treacherous, hence the frequency with which dew or condensed moisture is noticed in all our houses, simply owing to the variation of temperature. It is a remarkable fact, however, that Grapes do keep better than I ever experienced or observed anywhere else. This may show "NORTHERN GARDENER" that I do not arrogate to myself credit for good management.—D. THOMSON, *Drumlanrig Gardens*.

NOTES AND GLEANINGS.

THE DUNDEE HORTICULTURAL SOCIETY offers upwards of £400 in prizes to be competed for on the 5th, 6th, and 7th of September. The chief prizes are for plants—£10, £6, and £4 being offered in the classes for twelve and for twenty stove and greenhouse plants. The principal prizes for fruit are £5, £3, and £2 for collections of eight varieties; and £4, £3, and £2 for four varieties of Grapes, single bunches. Numerous classes are also provided for cut flowers and vegetables.

—A HIGHLY successful gathering of Chrysanthemum growers and others interested in the movement was held at the Salutation Tavern, Newgate Street, London, on the evening of the 2nd inst. for the purpose of presenting a TESTIMONIAL TO MR. JOSEPH DALE, who has been for thirty-five years gardener to the Honourable Society of the Middle Temple, but who has now, owing to the encroachments of buildings, ceased providing a Chrysanthemum show in the gardens under his charge. Upwards of a hundred subscribers and friends partook of the excellent dinner which was provided. Mr. Shirley Hibberd occupied the chair with singular efficiency, and Mr. Potts the vice chair. After the loyal and patriotic toasts had been duly honoured, and after paying a graceful tribute to the memory of Mr. Samuel Broome, who was in-

tered eight years ago that day, the Chairman in an admirable speech, in which the history of the Chrysanthemum and the works and qualities of its patron were sketched, asked Mr. Dale's acceptance of a timepiece and a purse of fifty guineas. Mr. Dale acknowledged the gift in a modest and manly speech. He had, he remarked, simply endeavoured in the best manner in which he was capable to discharge his duties to his employers, and also had the pleasure of giving the best aid in his power both to societies and individuals in extending the culture of the Chrysanthemum as a city and suburban flower; he had been complimented by H.R.H. the Prince of Wales, but a greater honour even than that he esteemed the tribute paid to him by his friends and co-workers. The timepiece contained the following inscription:—"Presented to Joseph Dale, F.R.H.S., thirty-five years gardener to the Hon. Society of the Middle Temple, with a purse of fifty guineas, by friends who esteem his worth and appreciate his labours in the cultivation of the Chrysanthemum. January 31st, 1878." The toast "Gardeners and Gardening" was well responded to by Mr. Thomson of the Crystal Palace; Mr. Taylor, the winner of the first silver cup offered for twenty-four cut blooms of Chrysanthemums; and Mr. Oubridge, a celebrated cultivator of that flower. The evening was altogether a very enjoyable one.

— A CORRESPONDENT, "T. C.," writing to us from Sharpley, near Bolton, Lancashire, on the RAINFALL OF LAST YEAR, states that he is situated about a mile and a half from the Bolton Corporation reservoirs, and by the official gauge 81.12 inches were registered during 1877. At a gauge kept in the town, about the same distance south of Sharpley, 60.37 inches were indicated. So taking the mean they have 70.74 inches as the fall. And yet of the district writes "T. C.," "we were at times quite gay with flowers, whilst the Grapes were a more satisfactory crop than usual. A good deal may be done in a wet climate when you get used to it. The mean for thirty-five years is a little over 60 inches."

— IN Mr. E. A. Ormerod's "Notes of Observations of Injurious Insects" it is stated that Mr. W. D. Cansdale of Witham, Essex, mentions an application which he has found successful this year in freeing his Asparagus from a bad attack of the CRIOCERIS ASPARAGI (Asparagus Beetle). The mixture consists of half a pound of soft soap, quarter of a pound of flowers of sulphur, and about the same quantity of soot, well mixed together in a pail of warm water. In this the infested shoots were dipped, and on inspection the next day it was found to have cleared the larvæ. The plants were syringed afterwards with warm water (merely to clear off the dirt left by the dipping), and soon resumed a healthy appearance, and were thus saved from an unusually severe attack.

— WE have received the second number of the "MIDLAND NATURALIST," which contains amongst other subjects an interesting article on "The Distribution of the Genus *Rosa* in Warwickshire," by Mr. James E. Bagnell, who enumerates nearly fifty species and varieties of the wild Rose. Mr. Grove records the raising of a hybrid Fern. "His brother, Mr. T. B. Grove of Eastbourne, sowed a mixture of spores of *Blechnum corcovadense* and *Lomaria gibba*. Both of the plants from which the spores were taken were well grown, with stems about 3 feet high. Two fronds made their appearance from this sowing in advance of the rest, and were carefully transplanted. The other seedlings were normal, but these two, after throwing up at first fronds very similar to those of *L. gibba*, gradually changed their character. The pinnæ increased in breadth, the fronds became longer and more erect, and they have now produced fertile fronds intermediate between those of the two supposed parents. A well-known Fern-grower, who has seen the plants, said that he obtained a very similar hybrid about six years ago between *L. gibba* and *B. brasiliense* (a species allied to if not identical with *B. corcovadense*), which he exhibited at a meeting of the Royal Horticultural Society under the name of *L. hybrida*. He has since lost it. The correctness of his explanation was disputed at the time, but this independent production of what is nearly the same species seems to confirm it very strongly."

— "A. C. G." writes as follows in "The Journal of Forestry" on CORSICAN PINE AND GROUND GAME:—"I read that rabbits and hares would not touch the Corsican Pine (*Pinus laricio*), accordingly in 1874 I planted a few trees about 2 feet high in an open place in the centre of woods nearly 1000 acres in extent; this spot I selected as being in the heart of the chief game preserves. These trees are at this date growing well and

strongly, and have never from the time of planting till the present been touched by hare or rabbit. When they had so stood for a year I took courage, and in 1875 I planted about 1½ acre of open space (in the same woods, but about half a mile distant from the twelve planted) with the same Pine, purchased from the same nursery, of equal growth, and similar in every respect to the first. The rabbits and hares attacked them at once, and within a short time there was not an undamaged tree on the ground. Can any of your readers give a reason for the wholesale destruction of the second planting?"

— THE following dimensions of a handsome specimen of *CRYPTOMERIA JAPONICA* growing in the garden of A. Oakes, Esq., Downgate, Sandhurst, have been communicated by Mr. Hodgkin, the gardener:—"The specimen is 47½ feet high, 64 feet in circumference round the branches, 5 feet round the trunk of the tree 1 foot above ground, and 3 feet 8 inches 6 feet above ground. This tree was planted about twenty-three years ago—a small plant about 14 or 15 inches high."

— AS evidence that the culture of Roses is increasing a correspondent ("A. G. S.," *Inham*) informs us that he as an amateur is preparing about six thousand Rose trees. We hope in due time to have to record his success as an exhibitor, for such liberal preparations merit reward.

— MR. P. HENDERSON writes as follows in the American "Gardeners' Monthly" on *FUCHSIA RACEMOSA*.—"It is a most distinct species collected by Mr. Thomas Hogg in St. Domingo, 1872, but now for the first time offered for sale, we believe, either here or in Europe. It was exhibited in full bloom at New York Horticultural Society's show in June of 1876, and attracted general admiration. It grows not more than 18 inches high, forming a round bush, every shoot being terminated with a raceme of orange-scarlet wax-like flowers. It is of the easiest culture, and will undoubtedly become a standard plant both for the greenhouse in spring or for bedding out in partial shade in summer. As a market plant, from its distinct and beautiful appearance, it will have few equals."

— THE dwarf habit and free-flowering character possessed by the newer *ABUTILONS* render them very useful for various decorative purposes. One of the most attractive varieties, combining beauty of foliage with a profusion of flowers, is *A. tessellatum* Darwinii. The foliage is richly marked and is of itself highly ornamental, and flowers are freely produced when the plants are only a few inches high. This *Abutilon* will prove valuable for stove decoration during the winter, and for greenhouse, conservatory, and flower garden ornamentation during the summer. It strikes readily, grows freely, and flowers profusely at all periods of the year.

— IT will be remembered that a gold Banksian medal was last year awarded by the Council of the Royal Horticultural Society to Mr. Wills for his unique collection of seedling *Dracænas* raised by the manager of his Anerley nursery, Mr. Bause. This medal, in accordance with Mr. Wills's request, was handed to him without any inscription. Mr. Wills has since had the following inscription engraved on the medal:—"Presented by Mr. John Wills to Mr. F. Bause for valuable services rendered," and has handed it over to the skilled propagator and successful hybridist.

— PERHAPS some, says a correspondent in the American "Gardeners' Monthly" would like to know how to get two flowers instead of one from every flowering sheath of the *RICHARDIA ETHIOPICA*. As soon as the joint flower is cut or begins to wither, pull the stalk down through the open sheath clear to the bottom. At the bottom will be found standing close to the stalk another bud enclosed in a delicate covering. Cut the old stalk away as close as possible without injuring the bud, and if it has not been kept back too long it will grow up very quick. I have never failed to get both buds to flower. I never tie up the leaves close, but leave them free.

— RESPECTING MUSHROOM SPAWN "A KITCHEN GARDENER" writes:—"The most essential requirement to grow Mushrooms successfully is good spawn, and this I find most difficult to procure. Some time ago Messrs. James Dickson and Sons, Chester, sent me a few of their bricks to try, and I have done so with great satisfaction. The Mushrooms came up in close large clusters all over the beds from five to six weeks after inserting the spawn. Some of the largest which we gathered I had the curiosity to measure, and found them from 18 to 22 inches in circumference, and they were not black with old age, but showed that fine salmon colour underneath which indicated that they were not fully expanded."

— A GROWER of two hundred Vines writes to us that he thinks **INSIDE VINE BORDERS FOR LATE-KEEPING GRAPES** will very probably go out of favour. His Lady Downe's and Gros Colman with their roots outside are now splendid, whilst those planted in the centre of the inside with also their canes trained to the roof he was compelled to cut a month since.

OUR BORDER FLOWERS—FLAXWORTS.

THE Flaxworts are one of the most useful families of plants. We are indebted to our own as well as to other lands for these interesting occupants of our borders. Some of them are of slender habit and require support. I find with such plants as *Linum perenne*, *Lewisii*, *narbonense*, *monogynum*, *maritimum*, and others of their habit, it is good practice to place a few small branches round the plants tied round with a string and let the plants grow through them; they are unsightly when tied together in bundles. The flowers are but of short duration, but they yield a succession for a length of time. They delight in full sunshine and thrive in the ordinary border, but are the better for being supplied at times with fresh loam, leaf soil, or a little well-decomposed manure and coarse grit.

When established they last a long time, but are impatient of much moisture. They are increased by division in the spring. *Linum alpinum* and its white compeer are beautiful on the rockery. *Linum flavum* is one of the finest border flowers we possess in the early spring, and when well established the plants are like sheets of gold either on the rockery, border, or in a cold greenhouse. Grown in pots it is good for plunging in the spring garden. It strikes readily from cuttings in the spring or autumn; where it is pegged down the stem often strikes root and may be increased by division.—*VERITAS*.

THE ROOT-PRODUCING POWERS OF DIFFERENT COMPOSTS.

ON the 16th of October last I selected five young plants of *Iresine Herbstii* of nearly equal vigour (where they were not I picked off a few leaves of the strongest plants to make them equal), potted them, and half plunged them in a spare light in our Cucumberhouse. I also treated three plants of *Ageratum* in the same way, and I selected these two species because they are free rooters. The plants were potted in different descriptions of compost, as described in the following table, and were shaken out on November 21st, by which time all had made good growths and a considerable quantity of roots—in fact, the strongest plants were pot-bound. The experiment was conducted as fairly as possible, under the superintendence of myself, the foreman, and the young man in charge of the house, who had to water them when required with clean water out of the tank. In the table the proportion of roots in each case is indicated by the figures in the right-hand column—No. 1 indicating the fewest roots, No. 2 an increasing quantity, and so on.

IRESINE.		
No.	Description of compost used.	Proportion of Roots.*
1	Pure brown sand	1
2	Do. mixed with Standen's manure	3
3	Pure vegetable mould	4
4	Pure fibry loam	2
5	Loam, mould, and Standen's manure	3
AGERATUM.		
6	Pure silver sand	1
7	Pure fibry loam	2
8	Loam, mould, and Standen's manure	3

I may state that the different composts were put through a $\frac{1}{2}$ -inch sieve, except the silver sand and the loam; the latter being fibry was teased short by the hand—the object in both cases being to make a compost that would shake readily away from the roots when they came to be examined. The "pure vegetable mould" mentioned was taken from the heap that had covered the Vine border last winter, and consisted of nothing but thoroughly well-rotted leaves and stable litter in equal quantities. The roots in this mould were numerous, small, and fibry, and in quantity much exceeded the others. When the foreman and myself examined them we thought the proportion of roots in this case might be fairly represented by "5," but, to be within safe limits, I afterwards substituted a "4" for the "5"—and this, I am sure, understates the proportion if anything. The roots clung to the mould as if they had got hold of every particle of it. In the case of the

pure loam the roots, although not so numerous, were much the strongest, or rather thickest; this was very noticeable.

The results of the above experiment, though confirming my opinions on the subject on the whole, were different from what I anticipated. I confidently expected that the compost, consisting of loam and mould in equal quantities with a sprinkling of Standen's manure, would produce the most roots; but, as the table shows, it did not. Neither did I expect the sand and Standen's manure to produce more roots than the loam, though a good dose of the manure was given. I have, however, stated things as I found them, and your readers can form their own opinion on the subject. I am prepared to believe that other experiments with other plants might give different results, but cannot believe that in any case a poor soil fairly tested would ever exhibit the root-producing power attributed to it by some. As I said before, I recognise several factors in the production of roots than either rich or poor composts; but I am of opinion that rich soil and good growth will on the whole always be reckoned among the foremost agents in that respect.—J. S. W. (in *The Gardener*).

NOTES FROM CORNISH GARDENS.

TEHIDY PARK, THE SEAT OF G. L. BASSETT, ESQ.

TEHIDY PARK is one of the most extraordinary places that I visited on the north coast of Cornwall. Precipitous rocks full 300 feet high form its western boundary, against the foot of which the huge rollers of the Atlantic dash, often with terrific force, for there is nothing beyond but a wide waste of waters stretching right away to the shores of America. It is a wildly magnificent scene—a lonely coast not often visited by boats, so lonely that seals may occasionally be seen basking in the sun precisely like Scott's Phoca in the "Antiquary," which involuntarily comes to mind from the resemblance of the surrounding features to those portrayed by the great wizard of the north. From the edge of the precipice the park falls gently, rising again from a central valley to its inland boundary of mining lands, upon which I have no desire to dwell, for they are unsightly, and cannot possibly be regarded with pleasure except from a money-making point of view.

This contiguity of the sea on what may fairly be termed the windward side causes Tehidy to be swept very often by south-western gales, the scathing effects of which are visible in many places, especially along the margins of the more exposed belts and clumps of trees. Fine trees or shrubs might therefore not be expected to flourish here, and yet there are many such, forming an extraordinary sight, and affording lessons of exceeding value, not only as showing what to plant by the sea in southern counties, but also what will answer in exposed situations. Often have I told the merits of *Escallonia macrantha* as a climbing plant for clothing walls with perennial greenery and as a trailer for rockeries, but never have I seen except here such specimens of it standing out in the most exposed situations erect, compact, dense, with rich green glossy foliage, and regular models of symmetry, which even without a flower were exceedingly ornamental, but when covered with flowers must be strikingly beautiful. My readers will obtain a clearer idea of what degree of excellence these shrubs have been brought to when I tell them that one of them measured 51 feet in circumference close to the ground; and although the height of them was taken they were so well proportioned as to be all that one could wish, and infinitely superior to ordinary examples of this fine shrub. Mr. Davis, the forester at Tehidy, finds *Euonymus angustifolius* bears exposure to wind equally well, but it is much eaten by rabbits, which never attack the *Escallonia*; this is therefore the more useful as it is decidedly the more ornamental of the two.

The African *Laurustinus*, *Viburnum Tinus lucidum*, with large glossy foliage, is here in considerable numbers and in exuberant health and of extraordinary dimensions. One clump of it measured 14 feet high and was 42 yards in circumference, forming a regular mound of glossy foliage, and which I was told is at this season of the year literally covered with its white blossom. *Berberis Darwinii* with *B. stenophylla* and many others are all in a flourishing condition. But finest of all the shrubs is the wonderful specimen *Camellia* 17 feet high and 60 feet in circumference, having a dense clothing of deep green foliage from the ground upwards, and producing flowers freely. Although it was not my good fortune to see it in flower I was quite able to appreciate the remark that it was a striking object when in flower. Mr. Boscawen told me he has known it from twenty-five to thirty years and considers it the

* The tops also were generally in proportion to the roots.

finest example of its genus in Cornwall. Shelter is afforded it by common Holly mingled with *Ilex balearica*, both well qualified for such a purpose by their hardiness and sturdy growth.

Rhododendrons are extensively planted both as standards and bushes and are in excellent condition. Then there are Hydrangeas of large size and with blue flowers, which derive their colour from the ferruginous nature of the soil—an undoubted fact, which has led to the mixing of iron filings with soil by many who are desirous of obtaining a similar result by what they must suppose to be a similar agency. The failures which attend such experiments are no doubt an annoyance, and I would suggest saturating the soil with water containing a plentiful admixture of ochre, which is really the hydrated sesquioxide of iron, and which so applied is absorbed by the plants, inducing the flowers of the Hydrangea to come blue

instead of pink. *Arbutus Unedo* answers well, growing into large specimens, as do also *Phillyrea ilicifolia* and *P. buxifolia* and the Bay.

Of trees it will probably cause some surprise if I take first of all what is generally regarded as a tender shrub—*Benthamia fragifera*, but which here takes rank among trees, one specimen being 25 feet high. It is an evergreen, and is laden with scarlet fruit in winter, when it is really a magnificent sight. At Heligan, the seat of J. Tremayne, Esq., there are hundreds of them, and they are quite common in other Cornish gardens. It is a native of Nepal, and seed of it was sent to this country some fifty years ago by Sir Anthony Buller to Mr. Tremayne, who sent it to the Royal Horticultural Society when Mr. Benthall was Secretary, and by some means or other it came to be called after the latter gentleman. It should have a conspicuous position in every southern garden. *Ilex* flourish



Fig. 17.—TEHIDY.

here just as well as they do at Mount Edgcumbe. One which was measured is 70 feet high, with branches to the ground, where they measure 60 yards in circumference, and there are many more almost equally fine. It is much employed for the exposed sides of shrub belts, for which purpose it is admirably adapted, braving the high winds and growing in full vigour in situations where many so-called hardy trees would hardly exist. The Turkey Oak (*Quercus Cerris*) is also full of promise, but it has not had such a thorough trial as the *Ilex*. It is a tree that I much wish to see more frequently than I do, for it forms a handsome, symmetrical, spreading head, and its stem is quite as column-like as that of the Lucombe Oak. The Sycamore grows well, and so does the Beech. Of Conifers *Picea pectinata* is 100 feet high, and has a bole nearly a yard in diameter at 10 feet from the ground. It is really wonderful how well this lofty Fir answers in situations quite devoid of shelter. I have in Sussex watched specimens of it quite as large as that at Tehidy when swayed to and fro by a storm, to which their elastic stems yield like a piece of whalebone, springing back and retaining their erect posture as if high winds had never touched them. *Thuja Lobbian*, *Cupressus macrocarpa*, and *Abies Morinda* were all well represented, but *Wellingtonias* and *Deodars* do not thrive here.

I have thus dwelt upon certain trees and shrubs because I know the information so given will be turned to account in

many a wind-swept garden. Let me add a word of caution: Do not be tempted to plant large costly specimens; there is much risk of failure, and even if they do eventually answer four or five years are wasted before they are in full growth, and by that time small plants will have caught them and will soon rise above them. I have proved this repeatedly in my own practice, and have seen it still more often, especially in public gardens, where an immediate effect is often insisted upon. Plant small healthy plants, spend more money upon making good stations for them, and depend upon it you will have fewer failures.

The shrubberies at Tehidy are extensive and abound with fine shrubs, so fine as almost to induce forgetfulness of the fact that the stormy Atlantic is close by; but I do not forget it, and am going to indulge in a little faultfinding. One cannot but admire the fine specimens, and at the same time cannot help seeing that their development is being carried to an extreme. One would like to see more clumps, more grouping, more individuality in the features of the grounds themselves, and instead of a series of long interminable stretches of wide walks with parallel bands of turf on which are the specimens, an occasional cosy nook formed by a semicircular belt of trees and shrubs, with shrub clumps out on the turf; winding walks leading to circular enclosures formed in a similar way, but not having a heterogeneous collection of shrubs upon the lawn, but

with one or more specimens of a distinct species or several species of the same genus to impart a distinct character to that particular lawn. Thus for example there might be a *Benthamia* lawn, a *Magnolia* lawn, an *Embothrium* lawn, a *Cedar* lawn; not that either one of them should necessarily contain nothing but *Magnolias* or *Benthamias*, but that such should predominate sufficiently to impart distinction.

Another feature which might be introduced here with the happiest effect is an avenue. From the principal entrance a drive runs in a straight line through the park for a considerable distance without overlooking any agreeable prospect or feature of interest, and which moreover in stormy weather must be still more bleak and dreary here. An avenue further has a beauty of its own, for its features vary not only with the seasons but with every gleam of sunshine, every passing cloud, and instead of a tame monotonous drive there might be introduced here a feature that in course of time would become extremely beautiful. Hillard's observations on the avenue at the Poggio Imperiale at Florence will serve to enforce my meaning. He says, "The man is fortunate who can call such an avenue his own. It matters little what is at the end of it, whether a palace, a villa, or a cottage. It includes in itself all the elements of a landscape. The restless play of light and shade, the majestic canopy of foliage, the wind music that storms or whispers through it, the trunks regular but not monotonous, and ever revealing the fine accidents of perspective, are full of fresh suggestions and unworn exhilaration to a mind at all sensitive to natural beauty."

Here I must leave Tehidy, not that the subject is exhausted, for I have given no elaborate description of its gardens through which I made a hasty round, seeing as I went an excellent vegetable garden, fruit trees well managed and bearing abundant crops, *Roses* in a sheltered garden finer than any others I had seen in Cornwall, which cannot be termed a *Rose-growing* county; and shrubs and trees such as I have described them, affording useful lessons, which shall be turned to account in these pages as time and opportunity shall serve.—EDWARD LUCKHURST.

BROAD BEANS.

BROAD BEANS, although not generally considered so great a luxury as many other vegetables, are nevertheless much appreciated by many, and in all gardens of any extent a portion of the ground should be set apart for their cultivation. To grow *Broad Beans* well they must be planted in a strong rich soil. Ground which produces fine *Onions* will always grow good *Beans*. Ground intended for the first crop should be deeply dug or trenched about the end of January, and a liberal quantity of manure should be added when the soil is the least poor. The first spring sowing may be made about the first week in February. Drills about 3 inches deep and 2 feet apart should be drawn with a draw hoe. The seed should be rubbed in red lead and then placed in the drills singly from 1 inch to 2 inches apart. When ground is scarce two drills may be drawn quite close together, and both planted to form a double row. A small patch sown once a month until July will give a succession until the end of the season. When the plants are 6 or 8 inches high a good quantity of soil should be drawn to the stems, and as soon as they are 3 feet high the point should be taken out of every plant. This causes them to pod and fill-up quickly. Where very early *Beans* are required the seed is often sown the previous November. When this is done the soil may be a little lighter than for spring crops, and the position should also be drier. In unfavourable localities where success cannot always be depended on the autumn-sown crop, a few to supply an early dish or two may be sown and raised under glass in spring, and be planted out when they are about 6 inches high. The best varieties for all purposes are Johnson's Wonderful, Green Windsor, Monarch Longpod, and Beck's Green Gem, the last-named only growing about 1 foot high.—G. A. K.

PRUNING FRUIT TREES.

I WISH to say a word on the pruning of fruit trees. My experience suggests that young bush and pyramid trees are often cut too severely, which results in strong growth and few fruit spurs. I planted trees of Apples, Pears, Plums, and Cherries in moderately strong soil eight years ago. A portion of the trees were pruned in the orthodox manner annually, the other portion having received scarcely any "assistance"

from the knife, and pruning of them has been limited to thinning-out the branches. The slightly-pruned trees have yielded more than twice the quantity of fruit over those closely pruned, and the former are twice the size of the latter, and many of them have grown into natural pyramids and well-shaped bushes. In soil where the trees grow freely excessive pruning results in exuberant growth, unless root-action is also proportionally restricted.—A PLAIN GARDENER.

VRIESIA SPECIOSA.

AN old stove plant in my collection I observe always attracts the attention of visitors on account of the rich zebra-like marblings of its leaves, which show to great advantage when the plant is elevated. It is, indeed, one of the best shelf



Fig. 18.—*Vriesia speciosa*.

plants I possess. It is of easy cultivation, and is propagated from the suckers the same as the *Pine Apple*, and I have never any difficulty in disposing of the pretty young plants. The plant grows freely in a light open compost of fibrous peat, sphagnum, and charcoal. A gardener visiting me the other day told me the plant was a *Tillandsia*: he may be right, but I prefer adhering to the old name. I can recommend this as a shelf plant, for when well grown it is very beautiful.—M. D.

[We concur that *Vriesia speciosa*, syn. *Tillandsia splendens*, is an attractive "shelf plant," and still more beautiful and more valuable are *Tillandsias musaica* and *tesellata*.—EDS.]

SOW GOOD SEED, says the *Prairie Farmer*, for the following good reasons:—A seed in the process of germination under the action of moisture and heat, has its starch converted into a saccharine fluid, which with the gluten furnishes the first nutriment for the young plant. As the plant grows the roots begin to absorb nourishment from the earth, but while this is taking place absorption is also going on from the constituent parts of the grain until it entirely disappears, leaving only the hull or skin. From this we may see the importance of using only the best and heaviest seed, since during the first growth of the plant the seed is the life; and until a very

considerable growth is attained the plant still continues to draw nutriment from the seed : hence the better the seed the stronger the plant, and the weaker the seed the weaker the plant. If we want an even and vigorous growth we must sow none but the best and heaviest seed. It is true the effect is not seen in a single crop, except to the critical observer. Followed up it soon becomes apparent to the most careless observer. It is also true that degeneration proceeds much faster than regeneration : hence, again, the reason why careful cultivators are always enabled to realise the best prices for their products.

THE ECONOMIC USES OF FLOWERS.—No. 2.

INCIDENTAL mention may now be made of some of the other uses of flowers at home and abroad.

The medicinal substance called *semen-contra* is obtained from plants belonging to the family of Composites ; according to Batka it is yielded chiefly by *Artemisia Sieberi*, *Besser*. The flower-head is the part of the plant employed. Santonine, the active principle of the drug, is valued as a vermifuge.

In France the flowers of *Malva sylvestris* and *rotundifolia*, and of *Althæa officinalis*, *Nymphæa alba*, *Verbascum Thapsus*, *V. lanatum*, and *V. nigrum* are officinal, emollient, and demulcent, furnishing a pure mucilage.

The Marsh-Mallow is cultivated in certain districts of England and held in repute as a medicinal plant, being used chiefly in fomentations and gargles.

The flowers of the well-known Marigold (*Calendula officinalis*) were formerly used in soups and broth and as a carminative, but they are now chiefly employed to adulterate saffron.

The flowers of *Lyperia erocera*, of South Africa, resemble true saffron in smell and taste, and have similar properties ; yielding a fine orange colour, they have been imported into this country for dyeing purposes. The flowers are in daily request with the Mohammedans at the Cape, who use them for the purpose of dyeing their handkerchiefs. They possess similar properties to saffron, and as an antispasmodic, anodyne and stimulant, according to Dr. Pappe ("*Flora Capensis*") ought to rank with the *Crocus sativus*.

The flowers of the yellow Lady's Bedstraw (*Galium verum*) have been used in England in the place of rennet to coagulate milk.

Saffron flowers and those of the Embuch are employed for dyeing in Turkey. Those of *Althæa filicifolia*, *Cav.*, are used in Turkestan to form cataplasms for inflammatory swellings.

The extremely fragrant flower-heads of *Santolina fragrantissima*, *Brick.*, are sold in the shops of Cairo as a substitute for Camomile, under the name of Babouny or Zeysoum.

An infusion of the dried blossoms of the common Cowslip is drunk in some counties in England under the name of Cowslip tea. The blossoms communicate an aromatic fragrance to home-made wines, resembling that of the Muscatel wines of the south of France.

An infusion of the flowers of the Lime (*Tilia europæa*) separated from the bracts, is considered to be a sovereign remedy for headache in Switzerland and Germany. The flowers of the *T. argentea*, *Desf.*, have been met with in Europe as a substitute for the flowers of *T. parviflora* and *T. grandifolia*, *Brick.* The flowers of the former species have larger bracts, which are of a greener colour than the officinal, finely reticulated above, and underneath densely covered with stellate hairs, which readily separate when dry, forming a woolly irritating powder ; the flowers have, particularly in the fresh state, an odour reminding of Hyacinth and Lily of the Valley.

An infusion of the flowers of the Linden is much used on the Continent, being considered good in vertigo and spasms, and against coughs, for its expectorant properties.

In North America *Calycanthus lævigatus* and *C. floridus* are much prized for their highly-scented inconspicuous flowers, which are often gathered and put into clothes-drawers to impart their perfume.

Evodia hortensis is a favourite plant in the gardens of the natives of the Pacific Islands, being used for scenting Cocoa-nut oil.

The small flowers of *Pandanus odoratissimus* are very fragrant, and from them an oil, known as keora oil, is obtained. The perfume is extracted chiefly from the male flowers. The floral leaves themselves are eaten either raw or boiled.

The flowers of a Jasmine, the *Nycanthes arbor-tristis*, shed a delicious fragrance in gardens, where they bloom only during

the night. It is at sunset they open, and before the morning the ground is covered with the fallen corollas. The native women collect them in India, and stringing them on threads, wear them as necklaces, or twine them in their hair. The orange-coloured tubes dye a beautiful buff or orange colour, with the various shades between them, according to the proportion and mode of conducting the operation, but no way has yet been discovered of rendering the colour durable.

In the East the petals of the flowers of *Hibiscus rosa-sinensis* are used for blacking shoes, and the women employ them to colour their hair and eyebrows black. They are also eaten by the natives as pickles. The flowers are used to tinge spirituous liquors, and the petals when rubbed on paper communicate a bluish-purple tint, which forms an excellent substitute for litmus paper as a chemical test. In China they make these large handsome crimson, yellow, and white flowers into garlands and festoons on all occasions of festivity, and even for their sepulchral rites.

The flowers of *Acacia Farnesiana*, known as cassie, distilled yield a delicious perfume. In Borneo the fragrant flowers of *Areca Catechu* are mixed with medicine for the cure of many diseases.

In China many odoriferous flowers are much used in scenting teas. Ball, in his work on "Tea," p. 142-164, gives a description of some. Among these the following may be enumerated :—The best kinds of Caper or Sonchey teas are said to be scented more or less with the curious green flowers of the Chu-Lan (*Chloranthus inconspicuus*, *Swartz*), although Fortune states that those of the *Aglaia odorata*, *Lour.*, are used. These writers agree, however, in the following :—

Pac-shoen, the sweet-scented pale yellow flowers of *Gardenia florida*.

Quy-fa, or Kuey-Noa, the yellow flowers of *Olea fragrans*.

Moo-ly-Hoa, the white flowers of *Jasminum Sambac* and *J. paniculatum*.

The *Mesua ferrea* is much cultivated in Java and Malabar for the beauty and fragrance of its large white flowers. When dry they are mixed with other aromatics, such as Sandalwood, and used for perfuming pomades. The blossoms are found in a dried state in the Indian bazaars, and are called Nagkushur ; they are used medicinally, and much esteemed for their fragrance, on which latter account the Burmese grandees stuff their pillows with the dried anthers.

The large flowers of *Michelia Champaca* are celebrated for their exquisite perfume, and the tree is highly venerated by the Hindoos. The natives adorn their heads with them, the rich orange colour of the flowers contrasting with their dark black hair. Sir W. Jones states that their fragrance is so strong that bees will seldom, if ever, alight upon them.

Large numbers of the fleshy variegated calyces of the *Hibiscus Sabdariffa* are dried and stored in parts of Africa ; in this condition they retain their fragrance, and serve for the purpose of giving the soups of the natives an acid flavour almost as sharp as vinegar. The calyx and capsule freed from the seeds make excellent tarts and jellies ; a decoction of these sweetened and fermented is commonly called in the West Indies sorrel drink.

The natives of India are very fond of the flowers and leaves of *Clerodendron serratum*, which they eat as vegetables.

From the flowers or blossoms of the Red Gum Tree (*Eucalyptus rostrata*), the natives of West Australia make a favourite beverage by soaking the flowers in water. The *Banksia* flowers are also so steeped to extract the honey. The natives are extremely fond of the infusion, and in the season their places of resort may be recognised by the small holes dug in the ground, lined with the bark of the Tea tree, and surrounded with the drenched remains of the flowers, called by them man-ryt. They sit round this hole, each furnished with a small bunch of Pine shavings, which they dip and suck until the beverage is finished.

From the flower of the Budjan shrub (*Dryandria Fraseri*) a nectar or honey is also obtained, much sought after by the natives.—P. L. SIMMONDS (in the *Chemist and Druggist*).

RAINFALL IN 1877.

I HAVE now the pleasure of sending tables of the fall of rain at some of the principal country seats in Scotland and Ireland, and also a little list which shows that the fall last year was in excess of the average in all parts of the country. The table on page 92 in your last issue gave for England and Wales the following extremes :—

<i>Driest</i> —Dalby Hall, Melton Mowbray	25.58 inches
<i>Wettest</i> —Brathay Hall, Ambleside	96.56 "
The Scotch List gives— <i>Driest</i> —Springwood Park, Kelso	34.01 "
<i>Wettest</i> —Inverinate, Loch Alish	92.60 "
And the Irish— <i>Driest</i> —Belle Vue Park, Dublin	33.49 "
<i>Wettest</i> —Florence Court, Enniskillen	68.56 "

It must, however, be remembered that it is usual for wet localities to be avoided in selecting sites for important residences, and therefore the extremes above given are far within the true extremes. Upwards of 100 inches fell at many stations both in England and Scotland.

I now come to the question of the relation of the fall in 1877 to the average, but here I should like to be discursive. In the first place I wish to ask gardeners when they change from one service to another always to be careful to leave their rain accounts in good order, and to call their successor's attention to the gauge. I think that I am within the mark in saying that dozens of otherwise good registers have been spoiled by a break in the register during a "change of gardeners." Secondly, I wish that people would never do as I have done at the beginning of this paragraph—viz., write of "the average" without completing the phrase by saying "the average of the last—years:" this is essential, because unless comparisons are made with the same group of years, or with very long periods, they are apt to be misleading. In the following table the 1877 records are shown to be generally and greatly above the average 1860–69, which average I have elsewhere shown ("British Rainfall," 1871, p. 65) to be nearly identical with that of the previous half century. The stations in this table are arranged from south to north, and the western stations are printed in italics. I regret the paucity of the Irish records, but until lately the rainfall was rarely observed in Ireland, and an Irish engineer told me that they did not require to know the rainfall for drainage purposes. Whether they were as successful without the information as they would have been with I did not think it necessary to inquire.—G. J. SYMONS, 62, Camden Square, N.W.

RAINFALL IN 1877 AT SOME COUNTRY SEATS IN SCOTLAND.

Station and County.	Observer.	Total Depth.	Days on which 0.01 in. or more fell.
Adross Castle, Alness, E. Ross	Mr. Massie	46.87	237
Belmont Castle, Meigs, E. Perth	" Murray	41.90	—
Bothwell Castle, Lanark	" Turnbull	37.90	—
Bowhill, Selkirk	" Mathison	45.76	207
Broomlands, Kirkpatrick, Juxta Dumfries	" Burgess	80.10	207
Capeoch, Thornhill, Dumfries	" McKellar	62.83	217
Cluny Castle, Aberdeen	" McDonald	36.30	186
Douglas Ho., Droughty Ferry, Dundee	" Graham	39.33	186
Drum Castle, Aberdeen	" Gammie	46.72	—
Dunrobin, W. Ross	"	66.68	192
Dunrobin Castle, Sutherland	" Melville	40.89	244
Glen Tanar, Aberdeen	" Thomas	40.19	—
Gordon Castle, Banff	" Webster	35.41	—
Inverary Castle, Argyll	" Cae	88.90	—
Inverinate, Loch Alish, W. Ross	" Munro	92.60	218
Lewis Castle, Stornoway, W. Ross	" Smith	61.47	293
Marchmont Ho., Berwick	" Loney	46.06	234
Polmaise, Stirling	" Fritchie	48.50	—
Scone Palace, Perth	" Halliday	44.90	—
Silverbat Hall, Hawick	" Elder	43.83	290
Springwood Park, Kelso	" Wemyss	34.01	218
Tillypronie, Tairland, Aberdeen	" Littlejohn	36.43	233
Warmanbie, Dumfries	" Elliot	56.16	211

RAINFALL IN 1877 AT SOME COUNTRY SEATS IN IRELAND.

Station and County.	Observer.	Total Depth.	Days on which 0.01 in. or more fell.
Bellarena, Londonderry	Sir F. W. Heygate, Bt.	47.64	282
Belle Vue Park, Dalkey, Dublin	Mr. Kevans	39.49	—
Beesborough Park, Kilkenny	Mr. Laidley	43.34	212
Botanic Gardens, Glasnevin, Dublin	Dr. Moore	32.56	196
Clona Castle, Mayo	J. Simson, Esq.	47.80	—
Convoy Ho., Raphoe, Donegal	Major Montgomery	54.31	—
Courtown Ho., Gorey, Wexford	Mr. Braund	42.39	213
Drummany Ho., Killishandra, Cavan	H. M. A. Jones, Esq.	60.95	269
Florence Court, Enniskillen	Mr. McDonald	68.56	240
Flurrybridge, Armagh	Lord Clermont	58.43	221
Rockdale, Dungannon, Tyrone	Captain Lowry	48.74	229
Seaford, Down	Colonel Ford	51.64	214
Stephentown, Dundalk	Colonel Fortescue	37.41	233
Woodstock, Instigogue, Kilkenny	Rt. Hon. W. F. Tighe	52.74	233

RAINFALL IN 1877 COMPARED WITH THE AVERAGE OF THE TEN YEARS 1860–69.

Station and County.	1860–69.	1877.	Excess in 1877.
	Inches.	Inches.	Inches.
<i>Tehidy Park, Cornwall</i>	41.23	46.81	5.58
<i>Saltram, Devon</i>	44.81	45.41	0.60
<i>Englefield, Berks</i>	28.73	32.45	6.72
<i>Gorbamby, Herts</i>	27.85	36.71	8.86
<i>Cardington, Beds</i>	21.76	25.77	4.01
<i>Althorp, Northampton</i>	23.35	29.08	5.73
<i>Barton Hall, Suffolk</i>	23.68	29.21	5.53
<i>Holker, Lancashire</i>	45.63	58.23	12.60
<i>Bowhill, Selkirk</i>	33.03	43.76	10.73
<i>Springwood Park, Roxburgh</i>	24.66	34.01	9.35
<i>Bothwell Castle, Lanark</i>	28.89	37.90	9.01
<i>Polmaise, Stirling</i>	41.30	48.20	6.90
<i>Inverary, Argyll</i>	67.37	88.90	21.53
<i>Scone Palace, Perth</i>	29.18	44.90	15.72
<i>Gordon Castle, Banff</i>	29.19	35.41	6.22
<i>Dunrobin Castle, Sutherland</i>	37.69	40.69	12.90
<i>Woodstock, Kilkenny</i>	59.38	52.74	13.36

NOTES ON VILLA AND SUBURBAN GARDENING.

ROSES FOR COVERING WALLS, &c.—Many of the Hybrid Perpetuals, Hybrid Chinas, Bourbons, Tea-scented, Noisettes, Ayrshires, Banksians, and Sempervirens or Evergreen Roses are suitable for training against walls or for covering trellises or arbours, and few plants look more beautiful when the objects to which they are trained are well covered. The Hybrid Perpetuals do not make such strong and rapid growth as the Hybrid Chinas, Teas, Noisettes, Sempervirens, and other rampant growers; nevertheless, the following varieties are robust and possess brilliant and striking colours, and will grow under good treatment from 10 to 10 feet high. They therefore have much to commend them for low walls or for covering the lower parts of high walls by planting them alternately with the more luxuriant growers—Anna Alexieff, Camille Bernardin, Charles Lefebvre, Duke of Edinburgh, Edouard Morren, Général Jacqueminot, John Hopper, Jules Margottin, Madame Clemence Joigneaux, Maréchal Vaillant, Paul Neyron, and Sir Garnet Wolseley. If the above selection were planted alternately with summer-blooming Clematises, such as Miss Bateman, lanuginosa, Jackmanii, Rubella, and Rubro-violacea, a grand display of bloom would be produced throughout the summer. Sir Joseph Paxton and Souvenir de la Malmaison are two very free-blooming Bourbon Roses suitable for low walls. The last named is one of the best autumnal-blooming Roses our gardens possess, and its foliage is always clean and good.

Of Noisettes, Aimée Vibert, Bouquet d'Or, Céline Forestier, Cloth of Gold, Lamarque, and Réve d'Or are sorts worth adding to every collection, but in most districts they require a south or west wall. Aimée Vibert and Céline Forestier are undoubtedly the hardiest and are profuse bloomers, while Cloth of Gold is usually very shy in blooming, but where it does succeed its blooms are very beautiful.

The never-failing Gloire de Dijon of the Tea-scented Roses stands pre-eminent, and should be planted wherever there is room if only for one plant. If its blooms are not always up to the orthodox exhibition standard it supplies us with both the first and last Rose of summer, blooming not by mere "dribbles," but in great quantities. Our gardens are now enriched by several seedlings of this good old Rose, and amongst them are Belle Lyonnaise and Madame Trife, which possess the same habit and hardness of their parent, but not such constant-blooming properties; they are, nevertheless, valuable additions to the autumnal-blooming Roses. Other good climbing Roses among the Tea-scented are Cheshunt Hybrid, Madame Maurin, and Maréchal Neil. The last named is undoubtedly the finest yellow Rose in cultivation, and will succeed in almost any aspect in the south of England. We prefer this Rose worked on the Briar, which stock also suits Gloire de Dijon and nearly all other Teas.

Blairii No. 2, Charles Lawson, Paul Verdier, and Vivid of the Hybrid Chinas, make grand pillar Roses and for covering high walls; they require but little pruning—merely the old and weak wood being taken out, and the extreme points of the shoots removed.

Félicité Perpetuelle is of a quick rampant growth and admirably suited for covering arbours or arches. Its clusters of creamy white flowers are in summer very attractive, and its dark green leaves continue fresh throughout the winter.

Banksian Roses are not met with so frequently as they merit, perhaps from the fact that they require sheltered situations: and are neither suited for pillars nor standards; but both the white and yellow Banksian grow luxuriantly on a south wall, rapidly covering a large area. The flowers of these elegant Roses are small, and are produced in clusters on the previous year's wood, and the system of training and pruning required differs materially from that laid down for all other Roses; merely nailing-in the strong branches to the wall at their full length, and thinning-out any crowded shoots or weakly growths, is all that is required.

Banksian Roses also bloom earlier than the other sections, and flowers are generally to be had from April until June.

The process of planting all Roses against buildings requires both care and forethought, for in the preparation of the soil success in a great measure depends. After the completion of buildings the ground which surrounds the walls is almost invariably of the poorest, in which case it ought to be entirely removed and replaced with a richer compost. A good, substantial, and lasting soil to plant in is absolutely necessary, or else the growths will be scanty and fall a prey to both green fly and red spider. Among the other causes of failure is the want of sufficient moisture at the roots throughout the summer months, for when Roses are planted against high walls they do not receive an equal share of the rains as do plants that are placed in more exposed situations, therefore the frequent use of a garden engine is necessary for insuring clean and luxuriant foliage.

Any young shoots springing from the base of all climbers must be encouraged, and the older shoots should be cut away to make room for them. By adopting this system the base of the wall is prevented from becoming bare, which is too frequently the case. Encourage the strong shoots of Hybrid Perpetuals, and nail them in their full length. This practice and keeping the growths clean will aid in the production of fine blooms throughout the season.

We omitted mention last week of that fine climber *Wistaria sinensis*, which although deciduous is very valuable for covering large walls, and its long racemes of lilac Pea-shaped blooms are always welcomed. The plant is of such a rambling habit that we have known it cover the south side of several houses. It is also a very profuse bloomer, bearing on the short spurs of the long shoots. We have known *Wistarias* make no progress in growth after being planted for a season or two, and all at once they have made a start, growing away most extraordinarily.

WORK FOR THE WEEK.

KITCHEN GARDEN.

SHOULD mild weather prevail a sowing of early and second early Peas may be made in the open ground, also Broad Beans, sowing between the rows of Peas a single row of Round Spinach, which will not in any way interfere with the growth of the Peas, and coming in soon will render available for other purposes the ground occupied by the winter crop. Early crops of Peas when appearing above ground are often attacked by birds, particularly sparrows. We find nothing so effectual in preventing their attacks as occasionally dusting the Peas whilst damp with soot or dry wood ashes; these dustings we also find equally effective against slugs. Winter Spinach should only have the large outer green leaves picked off for use; but the plants should be gone over frequently, removing any decayed leaves and stirring the soil between the rows frequently, removing all weeds. Late plantings of Celery may now be taken up with a ball of soil to each plant, laying them in at the back of a north wall, covering the blanched part with cocoa refuse or spent tan, and protecting with mats in severe weather. The Celery will thus be prevented running for some time longer, and the ground it occupied will be set at liberty for trenching preparatory for other crops.

Forcing Department.—Admit air freely to Carrots and Radishes in frames, applying water if it is necessary at a temperature of 65°, and thinning out the early-sown crops to 2 inches apart if in rows, allowing an inch more if broadcast. Another sowing of those crops should be made now. The bed of hot dung and leaves for this sowing need not exceed about 18 inches high, provided the frame is filled with the same material to within a foot of the glass; a depth of 4 inches of rich light soil brings the plants still closer to the glass, yet allows ample space for growth. If sown in alternate rows 8 inches apart the Radishes will be off before the Carrots require the whole of the space. Early Nantes Carrot is good for this sowing. Plant more Potatoes in pits or frames; these usually give better results than those planted earlier. Attend to those growing vigorously, earthing-up such that require it, and see they are not drawn by lack of air; when the sun is very powerful the lights may be removed. Introduce fresh roots of Asparagus, Sea-kale, and Rhubarb, also Mint and Tarragon, keeping up the supply of small saladings by frequent sowings. Celery may now be sown for an early crop. Incomparable Dwarf White and Leicester Red are the best for this sowing. Admit air freely to Lettuces in frames, stirring the soil about the plants; similar remarks apply to Cauliflowers. Those not having hot dung at command may sow Celery seed in cold frames or ground vineries, placing in about 6 inches thickness of light rich soil, and if the glass be not more distant from the soil than a foot all the better. Seed of Early Paris Market Lettuce may be sown in rows 6 inches apart, with a row of French Breakfast, Wood's Frame, or Sutton's White Forcing Turnip Radish between, and French Forcing or Early Nantes Carrot in rows 6 inches apart with Radishes between the rows; Early London, Walcheren, and Veitch's Autumn Giant Cauliflower, if sown now and the plants pricked out on a warm border when the second rough leaf appears, and afforded protection for a time, will afford a succession to those wintered under handglasses or in frames.

HARDY FRUIT GARDEN.

The recent frost, with snow in some districts, has been very acceptable. The buds of fruit trees are in a forward state, but not so advanced as to create alarm yet. Timely attention should be given to providing the requisite protecting material. Apricots are swelling the buds rapidly, but where there are wide coping-boards or glass copings they will afford ample protection until the blossom shows colour, when the protective material must be applied. Experience has taught us that stout canvas or frigidomo are the best materials, but their cost has induced the adoption of scrim canvas, which can be had in widths of 8 or 4 yards, and of any required length. We secure the canvas to the coping, and place battens 2 inches square at 8 to 4 feet apart, one end being fixed in the ground, the foot about 2 feet from the wall, the top to the coping flush with its outer edge. We have a loop formed of twine fastened to the canvas, and a nail in each batten or pole at 18 inches to 2 feet from the ground, so that the loops being secured to them the canvas cannot be displaced by winds nor beat against the blossoms. The material is used only in case of frost, being removed whenever the weather is mild. This mode of protection is much superior to that of herring nets, which, however, are useful, and in a double fold are often sufficient to prevent injury from frost until sufficient foliage is produced to afford natural shelter. Spruce branches are also useful when more efficient protection cannot be obtained. A crop so important as wall fruit should, however, not be trusted to makeshift appliances.

FRUIT HOUSES.

Vines.—Those in flower, which will be the case when fire heat was applied early in December, should have a temperature of 65° to 60° at night, and 70° to 75° by day. We now keep the atmosphere somewhat drier by freer ventilation, leaving a little air on at night, yet keeping the floors sprinkled three times a-day during bright weather. Any shy-setting Grapes may have the pollen distributed by rubbing the bunches gently with the hand; stop the laterals at the first leaf, keeping those stopped at one joint throughout the season, but those beyond the bunch may be allowed to make two or more leaves before stopping them, provided there is space for the exposure of the foliage to the light. Avoid overcrowding the foliage, it being better to reduce the laterals than do that. The Vines in the house started early in January will now be in leaf and showing fruit. Disbud when it is seen which shoots are likely to afford the best bunches. One bunch on a spur is as much as is calculated to finish satisfactorily; but if there be space, the spurs being widely distant along the rod, two shoots may be left, it being clearly understood that only one is to be allowed to carry fruit, the duplicate only remaining until choice can be made of the best, and in case of two shoots being retained one of them ought to be near the main rod, so as to keep the spurs as short as possible. See to the fermenting material on outside borders. Where the heat is declining renew with fresh litter; that in the house, if any, being turned frequently will give off ammonia, which we find conducive to the size, colour, and substance of the foliage and the immunity from insects, particularly red spider. All inside borders should be frequently examined, and when water is requisite it should be applied at not less than the mean temperature of the house, or 5° to 10° higher than that of the border at a foot depth. The house for affording fruit in July and August may now be started. Damp the rods three times a-day and every available surface. 50° being a sufficiently high night temperature to commence with, and 65° by day with sun.

Peaches and Nectarines.—Proceed with disbudding in the earliest house—that to which fire heat was applied early in December, removing all shoots not having fruit at their base and not required for extension. The extensions should be laid in at 1 foot apart, and growths emanating from those of last year may be retained at 12 to 15 inches asunder. Branchlets having fruit should have a shoot preserved at their base to take the place of the one now carrying the fruit, and those above it having fruit at their base to be stopped to two leaves, or if the fruit have no shoot at its side a shoot above it must be retained, pinching out its point at the second or third leaf. Reduce the number of the fruit, leaving one, or at most two, to a vigorous shoot. In watering the inside border, weak liquid manure slightly higher in temperature than that of the border will be advantageous to the swelling of the fruit. Admit air freely in order to have the growth for next year's fruiting short-jointed and the foliage thick and leathery, avoiding cold draughts, which chill the foliage and check the growth of the young fruit. In frosty weather it is safer to allow the temperature to rise somewhat higher from sun heat than to open the ventilators too much to reduce it. To afford fruit in July and early August another house may now be started, if it can be called starting, as we simply close the house, damp the trees twice a-day until the blossom is on the point of expansion, maintain a temperature of 50° by day, and increase it to 65° from sun heat. Make sure that the borders are in a thoroughly moist condition, not forgetting those in the latest houses, which are not infrequently neglected; ventilate the latest house very freely.

Melons.—Those sown as advised will now be in rough leaf. Pot the plants singly into 8-inch pots; or if sown singly, as is advisable, shift into pots a size or two larger, and again plunge them in the

bed near the glass. A stick should be placed to those intended for trellises, and the shoot be secured to it as it advances; but if intended to run over the surface of the bed stop the leading shoot at the second rough leaf. Sow for succession and for planting in frames.

Cucumbers.—As the days lengthen more moisture will be required, but the syringing must not be brought to act upon the foliage, it being sufficient if the walls, paths, &c., are damped during bright afternoons. Avoid sudden fluctuations of temperature; 70° to 65° at night, advancing with sun to 85° or 90° by day is suitable, giving a little air on all favourable occasions, closing early in the afternoon, when the house should be syringed. Look over the plants at least once, better twice a-week, removing superfluous fruit, thinning-out the foliage also to prevent it being too crowded, stopping at one or two joints beyond the fruit, and removing any decayed wood or leaves. The bottom heat must not be allowed to decline below 75°, but must be kept steady between that and 80°. Shift young plants into larger pots, placing a stick to those required for trellis-training, those for planting in pots or frames to run on the soil to be stopped at the second or third leaf, keeping the plants near the glass. Prepare fermenting materials and soil, which should be got in to dry, so as to be in readiness for pit and frame work when required.

ORCHARD HOUSE.

The trees, whether in pots or planted out, should all have been pruned and surface-dressed before this time. If not, see to it at once. In surface-dressing remove as the season is so far advanced about an inch of soil only near the stems, taking care of the large roots, removing 2 inches at the sides of the pot, replacing with rather strong turfy loam and well-decayed hotbed manure in equal parts, with a sprinkling of half-inch bones, ramming the compost well down, finishing within an inch of the rim of the pots. The buds are, however, swelling fast, and the roots will be active; when they are in that state disturbing the roots often results in the fruit setting badly. Pruning should be confined to the thinning-out of superfluous wood. The soil must be kept moist, especially in the case of trees surface-dressed in autumn, giving sufficient water to reach the lowest roots. Fumigate with tobacco if there are any aphids, and again just before the blossom expands. Ventilate freely, keeping the house as cool as possible without allowing frost to injure the trees. The heating apparatus, if any, should only be employed to exclude frost after the blossom show colour.

PLANT HOUSES.

Stove.—Cut down *Dracaenas* which have become leggy, potting the tops singly in small pots; if these are plunged in bottom heat and brisk moist top heat is maintained they will soon root. The stems may be laid horizontally and covered about an inch deep with spent tan or cocoa refuse. The young plants proceeding from them should be potted singly in small pots and be plunged in bottom heat until roots are formed, when they should be placed near the glass to induce a sturdy growth and good colour. *Allamandas* that have been kept dry should now be soaked, the ball afterwards being reduced half, repotting the plants in turfy loam light rather than heavy, with a fourth of old cow dung or leaf soil, and a sprinkling of sand, potting very firmly; cut the shoots back and arrange them on the trellis. *Bougainvillea glabra* should have the ball reduced about a third and be potted in turfy loam with a third of well-decayed manure, pruning close, as it is only the strong growths that afford good bracts. *Glerodendron Balfourianum* that has been kept dry for some time should have a little of the surface soil removed, but not injuring the roots at all, adding a little fresh loam. No pruning is necessary; the shoots should be merely trained to the trellises. Young plants required to be grown-on should be shifted with the ball entire, merely loosening the sides and removing the old drainage, affording the plants a good shift. *Scutellaria Mocciniana* cut back to two joints, keeping rather dry, and when the young shoots are grown an inch or two repot, removing the greater portion of the old soil, employing turfy loam with a fourth of old manure. It is a fine plant for late summer flowering. The points of the shoots strike freely in brisk moist heat. Do not stop the shoots, but keep established plants near the glass, so as to induce sturdy growth and large heads of bloom. It succeeds well in small pots, or several plants may be grown in a large pot. *Crotons* which have become too large may be cut back and kept rather dry; they break freely from the old wood. Any good long shoots may be potted and placed in brisk heat bottom and top, tying up the leaves loosely to enable them being placed closer. Wage incessant war against insects, especially mealy bug, which will now be active, and scale, than which there is no more certain mode of riddance than removal with brush and sponge, and fumigate frequently to prevent rather than destroy thrips and aphids. Get the soil for potting, which will now soon be required, prepared and under cover, where it will become sufficiently dry for use. On no account must it be used too wet, as the roots will not take to it freely. Turfy loam, peat, well-decayed manure, and leaf soil should be provided, also clean pots and crocks.

TRADE CATALOGUES RECEIVED.

E. G. Henderson & Sons, Pine Apple Nursery, Maida Vale, London.—*Illustrated Catalogue of Flower, Vegetable, and Agricultural Seeds.*

R. B. Matthews, 65 and 67, Victoria Street, and Richmond Nurseries, Belfast.—*Cultural Guide and Catalogue of Flower, Vegetable, and Farm Seeds.*

L. B. Case, Richmond, Ind.—*Botanical Index and List of New Plants.*

Walter Ford, Pamber, Basingstoke.—*Catalogue of English and American Potatoes, and Select List of Seeds.*

H. Elliott, Braywick, Maidenhead.—*Amateur's Garden Guide and List of Seeds.*

Louis Lhérait, 29, Rue des Ouches, Argenteuil, France.—*Catalogue of Asparagus, Strawberries, Vines, &c.*

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

BOOKS (Frenchay).—The "Vine Manual." Free by post if thirty-two postage stamps are enclosed with full address.

CHEMISTRY PLANTING (An Old Subscriber).—If you refer to No. 681 of this Journal you will there find a view and full directions for planting a cemetery.

LOMARIA GIBBA (Crawfordian).—Too much water applied to the roots, and the air of the house being too dry, cause the points of the fronds to die.

CYCLAMENS UNHEALTHY (H. T.).—The compost is right. Is the drainage efficient? and are the roots active and healthy? If this is the case and the plants do not improve as the season advances you will have sufficient evidence that the disease is chronic. Under any circumstances we should advise you to raise a fresh stock of plants from seed, as old plants often become stunted and diseased.

GUANO WATER FOR VINEYRIES (W. Sheldon).—A handful of genuine guano is sufficient for four gallons of water for placing in the evaporating troughs. Proceed with caution, using first a small handful and watch its effects, which if not satisfactory will indicate the necessity for more. Guano vapour keeps down insects and promotes the health and vigour of the Vines.

GROWING CUCUMBERS IN GREENHOUSE (Albert).—Fuchsias and Geraniums may be grown with Cucumbers in summer and early autumn, but not in winter, when the temperature necessary for Cucumbers would be too high for the flowers. You do not require a pitful of manure in summer, and will succeed best by throwing up a heap of rich rough soil on the floor, planting strong plants therein early in June, and watering with tepid water freely. Twelve good Fuchsias are Mrs. H. Connell, Lord Palmouth, Model Hercules, Rev. T. Whitshire, Wave of Life, Annie, Lucy Mills, Daisy Queen, Minnie Banks, Little Henry, and Miss Marshall. Geraniums—Jealousy, Kleon Riant, Imogen, Hetty, Mr. Chandler, Rev. M. A. Edgell, President Thiers, Acme, Ellen, Bibal, Annie Orton, and Mrs. Turner. These all belong to the same section, which we presume you want.

DAFFODIL UNHEALTHY (Mrs. J. H. M.).—Make a bed of pure peat in the open garden, turn your sickly Daffodil out of the pot, plant it in the peat, fasten the branches to the soil with pegs, and cover portions of them with peat midway between the tips and the main stem, and in due time your old plant will be restored to health and vigour, and many of the branches will have put forth roots. Sever them then from the parent plant and pot or transplant them to other beds. It is quite hardy, and we should cherish the old plant as a valuable addition to the flower border, giving preference to young plants for pot culture. It thrives well in peat, but only exists in loam.

RAISING EUCREMOCARPUS SCABER FROM SEED (Fiddle).—Sow the seed in March in pots just as you would any ordinary flower seed—that is to say, drain the pot well with broken crocks, fill it to within an inch of the rim with fine rich soil, which make smooth and even, water it, and then sow the seed, covering it with fine soil, which press down gently; place the pot in a warm structure, taking a hotbed for choice, and the young plants will soon appear and should be pricked singly into small pots, grown on quickly in heat, gradually hardened, and then planted out. Take especial care not to bury the seed too deeply under the soil; much seed is so spilt.

ORANGE TREE UNHEALTHY (Adam).—Your Orange tree is probably infested with mealy bug. Wash every part of it, leaf and branch, and repeat the washing without loss of time upon the slightest sign of filth or insects upon it. Repot now if it is much pot-bound, or apply a top-dressing of rich loam, and water occasionally with guano water or other liquid manure. Any of the nurserymen advertising hardy plants in our columns can supply double blue *Hepaticas*. Your so-called Leek is the Tree Onion.

PLANTS FOR CARPET BEDDING (T. T.).—*Grasses* of various shades—*Mantha Pulegium gibraltarium*, *Cerastium arvense*, *Tagetes signata* pumila, *Sempervivum montanum*, *S. calcareum*, *S. tabuleforme*, *S. hirtum*, *Sedum glaucum*, *S. lydium*, *S. anglicum*, *S. pulchellum*, *Echeveria secunda* glaucum, *E. metallica*, *E. pumila*, *E. roosa*, *E. atro-purpurea*, and *Kleinia repens*, most useful for the greyish blue hue of its thick pointed leaves. *Yellow*.—*Festuca Golden Feather*, *Mesembryanthemum cordifolium variegatum*, *Arabis lucida* variegata, *Coprosma Baueriana* variegata, *Vinca major* elegantissima, *Lonicera aureo-reticulata*, *Sedum acre* variegatum, *S. Fabaria* variegatum, *Stellaria graminea* aurea, *Knapweed flavescens*, *Golden Balm*. *White and Grey*.—*Leucophyton Browni*, *Santolina incana*, *Cerastium tomentosum*,

C. Biebersteini, Antennaria tomentosa, Veronica incana, Cineraria ceratophylla, Cotyledon pulverulenta, Gnaphalium lanatum, Salvia argentea, Lobelia Duchesne of Edinburgh. *Crimson and Carmine*.—Iresine Lindeni, Coleus Verschaffelti, C. Verschaffelti splendens, Amaranthus melancholicus ruber, Alternanthera amena, A. magnifica, A. paronychioides major, and A. spectabilis. *Blue*.—Lobelia pumila grandiflora, L. speciosa.

SEEDLING ECHEVERIAS (*Idem*).—Echeverias raised from seed this spring can hardly be turned to account this season, but a fine stock may be so raised now for next year.

ALTERNANTHERAS GREEN (*A New Reader*).—You need have no misgivings as to the foliage losing colour, as cuttings in that state invariably make the most healthy plants, and assume their rich hues as they advance in growth.

SOWING NEMOPHILAS (*Amateur*).—If seed of the charming blue Nemophila insignis is sown now in shallow drills in the open air, the seed being covered half an inch deep with light soil, you will have a fine display in June if you prevent the snails eating the young plants. The plants should be thinned-out as soon as they are large enough to be handled.

WOOD ASHES FOR POTATOES (*Lex*).—You cannot have a better application for this crop. Sprinkle the ashes on the sets before covering them with soil. If used liberally the ashes will not only increase the weight of the crop, but the tubers will turn out cleaner than if they had no such dressing. A mixture of wood ashes and dry leaf soil is an excellent compost for placing in the drills with Potatoes.

DAISY (*E. G. H.*).—It is a form called by botanists "proliferous," and by gardeners "hen-and-chickens."

PRUNING ROSES (*J. P. T.*).—As you desire to defer the pruning of your Roses as long as possible, you may safely wait until the young growth on the extremities of the branches is an inch in length or even a little longer, and then cut the shoots back to the dormant buds at their base. The Golden Bicolor Geranium is very good, the leaves being round, of good substance, and the colours well defined.

GOLDEN FEATHER FOR CARPET BEDDING (*H. A. M.*).—It is too early to sow the seed in heat, as before the season is over the plants would grow much too large for your panels. We should not sow the seed before the 1st of April, and prick the plants out in the beds when large enough to be handled, of course having them hardened off so as to endure the exposure. In the London parks very small plants are planted an inch or two apart in the beds in May.

WHITE VERVUUS GERANIUM (*L. L. D.*).—This is undoubtedly a variety of great promise, and the best evidence of its merit is that a first-class certificate was awarded to it by the Royal Horticultural Society in December last. It was exhibited by Mr. Cannell, who possesses, we believe, the entire stock.

PLANTING RASPBERRIES (*T. Wilson*).—Raspberry canes may safely be removed and planted at the present time, taking care that the roots do not become dry during removal. We should cut the canes down to within 18 inches from the ground. By so doing you would only sacrifice a small quantity of fruit, while you would secure much better canes for bearing next year. You have been rightly informed that Carters' Prolific is an excellent variety.

ROSES FOR A SCREEN (*Clericus*).—We presume that you have a fence of some kind for forming the foundation of the proposed screen. In that case you will find a selection of Roses suitable for covering it in our "Notes on Villa and Suburban Gardening" in the present number.

DWARF BEAN FOR SMALL GARDEN (*Villa Gardener*).—The best dwarf variety for either a small or large garden is Beck's Gem. It is prolific, green when cooked, and of excellent flavour, but is not, perhaps, quite so productive and hardy as the Dwarf Fan.

LABELS FOR ROSES (*G. M.*).—The most permanent are thus described by Dr. Schomburgk:—"The labels are of sheet iron, and before painting them I employ first a mordant of the following composition:—One part of chloride of copper, one of nitrate of copper, and one of sal ammoniac are to be dissolved in sixty-four parts of water, to which solution is to be added one part of commercial hydrochloric acid. The iron or zinc labels are to be brushed over with this liquid, which gives them a darkish colour. In the course of twelve to twenty-four hours they become dry, and to their now dirty grey surface a coat or two of any oil colour will firmly adhere. Our labels are painted black, and when dry the names of the plants are written with white oil colour, and immediately sanded with fine white sand. The sand will dry with the white colour and become compact. The first labels prepared with this composition were written in 1871, and show not the slightest effects of the weather."

NAMES OF PLANTS (*T. W.*).—Physalis edulis, or Winter Cherry. The Fern had no spores. (*G. M.*).—3, Sedum coraleum; 4, Sedum alsoides variegatum. The Aloe is Aloe soccotrina, and the flower with coloured bracts is Dalechampia Roeliana. The numbers on the specimens having been displaced we are unable to reply in the usual manner.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

THE MANAGEMENT OF DOWN EWES AND LAMBS.

UNDER this heading we propose to consider the best system of management for producing early lambs from down ewes, the object being to feed both fat at the earliest period, and for that purpose we have the choice of several varieties of the down sheep. First, those bred in Somerset and Dorset, having their origin in a cross between the Sussex or South Down and the horned stock of the first-named counties. Some forty years ago an experiment was tried as to whether this cross breed could be reared so as to bring their lambs as early as the horned ewes. This, however,

failed; but large numbers of cross-bred stock remained, and upon which has been engrafted the Sussex down and latterly the Hampshire down, and in all those flocks which can trace their origin back to the horned stock the propensity to bring their lambs early with a large number of twins still exists. It is these ewes which we now buy out of Dorset, Somerset, and part of Wilts that we find drop their lambs in December and January. We can also purchase ewes of the Hampshire down breed at the July fairs which, when brought into the enclosed arable farms of the southern and eastern counties and well kept, will bring their lambs in January. The Sussex downs also purchased early will, under good treatment and high feeding, produce lambs in January; but they are not so well calculated for the purpose of early maturity as the two first-named varieties of down stock.

The method of feeding the ewes after purchase should be carried out with great care and attention, for a generous diet, plenty of good forcing grass, and cracked beans as trough food, are the best means of inducing the ewes to offer early to the ram. Yet after they are proved to be pregnant luxuriant feeding often proves injurious, causing loss both of ewes and lambs. We therefore advise that during any stage of pregnancy the ewes should be kept upon close bare keep with a change once a-day of better grass, but divided off by hurdle folding, similar to feeding off turnips; and in order to furnish keeping of this sort Italian ryegrass should be sown, one bushel per acre upon the young wheat in March, and harrowed in. This, if the best foreign seed is sown, will afford good pasturage immediately after harvest, or it may be hurdled off twice before Christmas and will give good lying for ewes and their young lambs. Down ewes, however, generally consume all the grass upon the farm, and often some roots and hay, before they lamb. We do not consider it a good plan to allow them to feed on the young clover seeds. These should be kept in reserve as a turn-out for the ewes and their young lambs for about ten or twelve days before they go together into the turnips. It is very desirable that this stock should have a dry sheltered foldyard for the lambing season. A shed 8 or 10 feet wide, enclosing two or three sides of a square, is best, and in a rather sloping position, so that the water may drain away quickly, and the bottom should be covered with earth or peat soil about 8 or 9 inches in depth. This will not only absorb the urine but will assist in keeping the fold dry. The fold should be littered over with straw, and a fresh supply continually added as cleanliness requires; sand also should be strewed over every other day. This serves to consolidate the bedding and prevent its heating, which is injurious to the sheep in various ways, and is often the cause of foot rot or epidemic lameness, which sheep have now been subject to for many years. A store of roots or cabbages should be made near the foldyard; the latter is preferable, particularly for ewes before lambing. We cannot advise the giving common turnips in this case, having known great losses of ewes from premature lambing after having been fed upon turnips; it must, however, be allowed that Swedish turnips are the safest food. The ewes should also have a run upon dry pasture or stubble land during the daytime, and when feeding upon roots they ought to receive a liberal allowance of good hay.

We will now refer to the treatment of the ewes when they have yeaned, and also of the lambs as they fall. The weather is generally very changeable, and is frequently accompanied by frost and snow, at the time of lambing. To be prepared for all contingencies it is well to have a store of the large Drumhead cabbages at hand, which are not so susceptible of frost as roots; they can be more easily eaten by the ewes, and will furnish a better supply of milk for the lambs than can be obtained when the ewes are fed upon roots. It will also prove very advantageous when convenient that a few acres of dry pasture or wheat stubble should be held in reserve, containing all the grass which might have grown upon it since Michaelmas, and upon this land, by keeping a shifting fold, they may at the same time receive roots in addition. This pasture will afford good lying for the young lambs as fast as they fall, so that they should with the ewes be

removed to it, and there remain until their removal to the turnips. This removal, however, should not take place until the lambs are strong enough to encounter the difficulties which usually attend open-field feeding, which they will generally be able to do at the age of two or three weeks.

The foregoing remarks must be considered to apply only to those lambs which come healthy and strong; but when the reverse is the case they should, together with twin lambs, which are usually more weakly, receive especial care and protection, being placed in separate apartments of hurdles, square under cover, until they are able to follow to the field. It should be carefully noticed which it is that requires treatment, it being sometimes the ewe, at other times the lamb, and often both. When the ewes are short of milk, linseed cake commonly used for feeding purposes should be broken fine, and with oatmeal mixed made into gruel. This may be given to them twice a-day in addition to the usual supply of food with great advantage, for although linseed meal may be preferable for the purpose, yet when required for a considerable number it would prove somewhat expensive.

Lambs in some seasons suffer much in health, and heavy losses often occur. There are two complaints to which young lambs are more particularly liable, and which at the same time often prove fatal—namely, the "white scour" and "rheumatic" affections. The first of these is often beyond control. We have sometimes cured, when discovered in good time, with a dose of ten drops of tincture of opium and half a teaspoonful of prepared chalk in half a wineglass of warm water. This is sufficient for a lamb at any age under one month, and should be repeated every three hours until the desired effect is produced. The rheumatic complaint is first discovered by the animal becoming crippled and losing the use of one or more legs, which swell at the joints, after which the lamb soon becomes emaciated, and in case actual death does not ensue they are profitless for keeping, and should be destroyed. This disease unlike the first-named, has no remedy, but in all disorders a preventive being better than a cure, we will show the causes and likeliest method of prevention. In our own flocks for many years we have suffered great loss from this complaint, and we consider the cause to be—firstly, the ewe having too much milk and more than the lamb can take; and secondly, the insufficiency of milk, whereby the lamb becomes unable to bear the effect of changeable and bad weather; and thirdly, undue exposure in low and wet situations. The first cause may be obviated by the milk being drawn from the udder every day in those cases where the lamb cannot take it all, for we believe this is the chief cause of the disease and often the occasion of the white scour, for by accumulation in the udder the milk becomes unwholesome. Insufficiency of milk may be in some measure rectified by the use of the before-named linseed gruel. The last cause named may be removed by keeping the stock on the driest and most sheltered parts of the farm or by artificial protection. The lambs having arrived at a fortnight old they should with the ewes be placed on root-feeding, and it ought at this juncture to be decided whether the ewes are to be fattened with the lambs or are to be held on for grass feeding and fattening in the summer.

(To be continued.)

WORK ON THE HOME FARM.

Horse labour will now consist of ploughing after turnips fed off by sheep and harrowing-in the wheat after the drill or seedman, as it is still in time to sow any variety of spring wheat. April wheat, however, being the best, it is wonderfully productive both of straw and grain. This also is a good time to plough and press land where the clovers may have failed, which land may be sown with either April wheat, beans, or peas, according to the nature of the soil. But instead of sowing the beans alone we prefer to add winter vetches or a few small maple peas, and we find it seldom happens that both crops fail; one or the other is sure to succeed, and oftentimes both. Another advantage in double-cropping is that it saves much hand-hoeing, for after being properly horse and hand-hoed the vetches or peas shake hands across the lines and effectually master the weeds. After being harvested the crops of pulse are very easily separated, beans being so much the larger. Some horses will still be engaged in carting newly threshed corn to market or mill, carting dung or soil, conveying gravel or stones to keep in repair the farm roads leading to and between fields and the gateways. Before, however, gravel or stones are laid on the roads men should be employed taking out the water tables at the sides and raising the centre in order that no water may lie thereon. We have often secured a good lot of useful earth in this way to store in heaps for use at the farm in various ways.

It is now getting rather late for drawing yard manure on to the clovers. At this time of year we prefer to dress with nitrate of soda, about 1½ to 2 cwt. per acre. This increases the clover crop, and at the same time the prospect for the succeeding wheat crop. Any increase in the weight of the clover roots we consider an increase of manure for wheat or any other crop which may succeed the clover.

Hand Labour.—Men will now be employed in preparing and sowing artificial manures, also corn or pulse, whichever may be

in season. Hedging and ditching will still be going on, also planting for fences. In the meadow land, where it is too moist for quickset fences, we can recommend the planting of osiers and withy stakes set in across each other like latticework. When these become strong they make a good fence against cattle, and the prunings pay well for cutting, being useful and sometimes very valuable to the basketmakers. The women may now be sometimes employed in pulling, preparing, and heaping turnips in the field beforehand in readiness for the sheep. Children, too, used to assist the women in this work, but they are now engaged at school; the women, however, at this work can earn good wages when paid by the acre, as they can do as much as men at such light work as pulling and trimming the roots ready for the cutter. If the weather is wet work should still be found for the women, such as mending sacks and other light work under cover, in order that they do not lose pay when the weather is adverse.

SEASONABLE FARM WORK.

THE first January number of "our Journal" this year was not read by me until the third week of that month. I have not read a new year's number that has given me so much pleasure since the one that contained the first article on "Our Vines" by "MAUD," when the Editors gave her and hers such a warm welcome to their columns. This time it is not the gardening or bee part that is so attractive to me, but the addition of our Home Farm. I hail with gladness its insertion, and wish it much success. Farming has been carried on during the past three years under very serious and great difficulties, so much so that many have had to succumb to the ill effects of bad times and worse seasons. Be that as it may, the home farm is a different affair. It generally belongs to the lord of the parish or squire of the neighbourhood, and let times come as they may, must be carried on. As the garden supplies its vegetables, fruits, and flowers to the establishment, so the farm affords its pork, beef, and mutton, each alike essential to the well-being of a large and well-ordered hall or manor-house.

First and foremost in all farming operations to be considered is the weather, and as January is the beginning of a year, so it is also said to be the key. The January of 1877 was mild and fine, but remarkable for its storms and gales of unusual violence. This year the weather began of the same spring-like character, but more mild and more genial, and the month closed with a week of frost, without the gales and storms that occurred last year. We have had no frozen-out gardeners soliciting our charity, and skaters have been the only malcontents to keep-up the grumble at the weather, which is an Englishman's privilege. Though the favourable January of last year did not produce anything very extraordinary in either garden fruits or on the farm, there is no rule why this favourable January should not be productive of a very favourable year.

We commence the year as we commence a "new farm," by preparing for the at-present-best-paying of all crops, that of barley. The land now is in fine condition for ploughing. As fast as the land is cleared it should be turned over to get pulverised by the frost that is sure to come ere March winds make it dry enough to prepare for sowing. All the land on which turnips have been and are growing about here is sown with barley, in the usual four-field course of husbandry. The production of a good crop of barley is paramount, and the preparation of the land for such now is of the utmost importance when it is well known that our best barleys are now making here 60s. to 52s. per qr. of 56 lbs. to the bushel, whilst barleys from strong, ill-drained, and badly farmed lands are selling at 82s.

Cattle and sheep now enjoy the mild temperature, and the ewes that are with lamb have all gone on the turnips, so that land will now be cleared and prepared apace. It is to be regretted that there is still in this and other counties good, strong, undrained lands that have not been sown with wheat, but I think that the proportion is smaller than usual this year. Now if there is any crop that pays on such land it is a crop of wheat, but time having now gone by for wheat-sowing, the preparation of such for barley must be next thought of. At present such land would not carry the horses without treading it too much, but what may be done with such land by a farmer with energy and foresight even in a bad season is wonderful. By biding the time and catching the proper dryness of the soil, even this kind of land has and will grow enormous crops of barley. How this is best done, and where another field or two of barley may be got, shall be the subject of a future half-hour's scribble.—RUSTICUS, Lincoln.

THE PRESENT ASPECT OF POULTRY SHOWING.

THERE are not wanting signs that the exhibition of poultry and Pigeons is at present not altogether on a satisfactory basis. The writer of our "New Year's Greeting" hinted at this, and at the probability of the lesser shows falling through and the monster exhibitions being alone continued. As we promised, in our article on "Poultry in the Past Year," we now proceed to go more fully into the subject.

We do not allude to the management of shows and care of the

birds while at them; for this, we think, has greatly improved of late from the immense rivalry between them; neither do we wish at present to enter into that very unpleasant subject, the growth of dishonourable practices in connection with them; but we propose to say something on the subject in its broadest and most general aspect. We have lately heard several of our greatest and most genuine fanciers talk of discontinuing exhibiting unless a regular reformation should take place in the system of shows, as believing that at present the general cultivation of poultry is not advanced by them. There is, indeed, no failing in their number, as anyone may see by referring to the often long list of those forthcoming in our own columns or those of our contemporaries. We have at times observed as many as six, and those not obscure shows, held simultaneously.

It is not uninteresting to recall the rise of a fancy which has grown to such gigantic dimensions. It is, we believe, not quite thirty-three years since the first English poultry show was held in the Regent's Park Gardens; four years later, in 1849, followed the first Birmingham show, at which the birds were exhibited in their own baskets; and three or four years later we had the great metropolitan shows in Baker Street, when the "mania" was at its height. Crowds flocked to them, and a general interest in poultry seemed for the first time to be aroused in the public, as anyone sufficiently curious may find by looking back to the leading articles at the time in the *Times* and other journals on the subject. It was natural that those who began to turn attention to the beauty of their poultry yards should delight in these opportunities of showing their favourites for comparison and of adding fresh specimens to their stocks. Great annual exhibitions were instituted in the great centres of life and industry, and lesser shows in many country towns. Everywhere in those early days these exhibitions were crowded, and the receipts at the doors were sometimes enormous. A large portion of the public had never seen some of the rarer and more curious fancy breeds, and were glad to give their half-crown or shilling to have a sight of them; in fact, the expenses of a show were generally defrayed by the money taken at the doors: hence committees could afford to give good prizes with low entry fees. The financial success of some shows became well known, others followed, and so arose this great multiplication of these meetings. So far much good was done; an occupation which might become a considerable branch of national industry was encouraged, and an innocent domestic amusement was shown to be not unremunerative. Now all this has somewhat changed. So common have poultry and Pigeon shows become that in many districts few people, save those actually interested in the exhibits, care to visit them, unless the exciting and, as we think, somewhat incongruous adjunct of cats be added; and even the novelty of this is wearing off. We have specially in our thoughts the admirably managed Bristol shows, where superb collections in an almost perfect building ceased to attract even a fair company. The result of this is, that finances from this source having failed, and committees have been obliged to look to other means of paying expenses, entry fees have become high and prizes small; and efforts have been made in various ways, not always quite creditable, to obtain the largest possible number of entries, such as soliciting earnestly for late entries in contravention of printed rules, consulting individuals about the prize list on condition of their sending large entries, &c. These clever schemes do not always succeed, and perhaps after having paid an entry fee of 7s. 6d. and won a 5s. prize an *ad misericordiam* appeal is received from the secretary stating that the committee are heavy losers, and trust that we shall for this time forego the 5s. prize and be content with the honour thereof; or more frequently some kind friends of the secretaries or committee write that they "are sure we would not wish Mr. — to be a loser by his spirited undertaking," no doubt in the hopes that should they ever stand in the same uncomfortable predicament the favour would be mutual.

The whole of these evils are, we consider, a sign of decadence in poultry shows arising from their absurd and uncalled-for multiplication. Unfortunately they are not all that we have to animadvert upon. Another glaring one has arisen from the same causes. Almost every local district or country show is being thrown open to the world in the hopes, often vain, of attracting more entries or more visitors. Beginners are discouraged at the discovery that it is perfectly useless to contend against some famous Crystal Palace or Birmingham winner sent to win the three-guinea champion cup (!) at their obscure village, and cease showing in disgust. The worst result, however, of this general throwing-open of shows is overshadowing. An excess of enthusiasm for the pastime and of desire for fame, combined with these too frequent opportunities of showing, have encouraged the sacrifice of many a beautiful bird, by being trashed about from show to show; and worse than this a whole class of exhibitors, unworthy of the name of fanciers, has arisen who seldom breed a bird, but buy them and knock them about from show to show as a regular commercial speculation, till they have paid their price several times over in prizes and remain decrepid and useless, and, if ever parents at all, are those of a sickly and degenerate produce. We should remember that showing is only a means to

an end, the means being the comparison of birds, and the end the improvement of their breeds. If the end is sacrificed to the means they become worse than useless.

The aforesaid difficulties in the question of finance have brought about harm in another way—viz., the exclusion of all save "paying classes"—i.e., from the difficulty of making both ends meet. When a schedule is to be drawn up the catalogue of last year is referred to, and those classes which have not been well filled are forthwith cut out, and the breed is relegated to the "any variety class." Many interesting kinds have hence become almost extinct.

To sum up our observations, the indiscriminate increase of shows has worked evil in two directions, firstly in causing many doubtful expedients to be resorted to, to prop up undertakings with financially unsound footings; and secondly, in inducing an excessive and mischievous showing of birds to their detriment. We shall endeavour in another article to point out broadly what to us seem the best means of remedying these evils.—C.

PONTARDULAIS SHOW OF POULTRY, &c.

THIS was held January 30th and 31st, when the following prizes were awarded:—

POULTRY.—DORKINGS.—1, R. Leyshon. 2, The South Wales Live Stock Co. 3, J. Milward. SPANISH, MINORCAS, LEGHORNS, &c.—1, J. Kitchen. 2, M. E. Williams. 3, The South Wales Live Stock Co. GAME.—Black or Brown Red.—1, R. Thomas. 2, J. Phillip. 3, J. P. James. Any other variety.—1, J. Andrey. 2, The South Wales Live Stock Co. 3, R. E. COCHINS.—1 and Cup, C. Bloodworth. 2, A. W. E. Darby. 3, E. Clatworthy. *etc.* T. A. Dean. E. Clatworthy. HAMBURGS.—Silver or Golden-spangled.—1, 2, and *etc.* The South Wales Live Stock Co. 3, C. Pearce. Any other variety.—1 and 3, The South Wales Live Stock Co. 2, H. Hopkins. POLANDS.—1, The South Wales Live Stock Co. 2, Dr. E. Lloyd. 3, A. W. E. Darby. BRAHMA.—Dark.—1, E. Pritchard. 2, S. W. Thomas. Light.—1, T. A. Dean. 2, A. W. E. Darby. 3, The South Wales Live Stock Co. 4, P. SEAGUS.—1, Dr. E. Lloyd. 2 and 3, The South Wales Live Stock Co. BANTAMS.—Game.—1, C. Martin. 2, E. H. Gould. 3, A. J. Morris. Any other variety.—1, E. Pritchard. 2, T. C. Temple. 3, T. F. Phelps. MALAYS.—1, The South Wales Live Stock Co. 2, J. C. Huxtable. DUCKS.—Aylesbury.—1, S. R. Harris. 2, R. K. Penson. 3, C. E. Waring. R. K. Penson. *Romans.*—1 and 3, R. K. Penson. 2, T. F. Phelps. ANY OTHER VARIETY.—1, S. W. Thomas. 2, R. K. Penson. SELLING CLASSES.—1, C. Bloodworth. 2, The South Wales Live Stock Co. 3, Miss T. T. Nightingale. Cock.—1, E. Clatworthy. 2, J. H. Nichols. 3, C. Bloodworth. *Hens.*—1, T. Jarman. 2 and 3, The South Wales Live Stock Co.

PIGEONS.—CARRIERS.—1, T. Weeks. 2, J. E. Butler. 3, H. Yardley. POUTERS.—1, G. Holloway. 2, R. Pike. 3, M. R. Borland. TUMBLERS.—1 and 2, H. Yardley. 3, Mrs. Primavesi. ANTWERPS.—1 and 3, H. Yardley. 2, W. S. Handford. *etc.* J. Weaver. JACOBIANS.—1, H. Yardley. 2, T. S. Phelps. 3, Mrs. Primavesi. FANTAILS.—1, J. F. Loveridge. 2, P. R. Spencer. 3, Miss T. T. Nightingale. BARBES.—1, J. H. Jones. 2, P. H. Jones. 3, M. R. Borland. TURBITS.—1, H. Yardley. 2, C. Parsons. 3, J. F. Harvey. OWLS.—1, J. F. Harvey. 2 and *etc.* P. H. Jones. 3, H. Yardley. NUNS.—1 and 2, J. F. Harvey. 3, M. R. Borland. MAGPIES.—1, F. P. Bulley. 2 and 3, J. F. Harvey. ANY OTHER VARIETY.—1, P. R. Spencer. 2, A. C. Phillips. TUMBLERS.—Not less than Six High-Flying.—1, H. W. Evans. 2, W. Lewis. 3, Mrs. Primavesi. SELLING CLASS.—1, J. E. Butler. 2, J. F. Harvey. 3, R. Pike.

JUDGE.—Mr. M. Leno.

READING PIGEON AND CAGE BIRD SHOW.

THE Reading Show has become a regular institution, to which we look forward with much pleasure. So admirably adapted to the purpose is the Corn Exchange, and so excellent has the management of the Show always been, that this the fourth Exhibition secured nearly 1200 entries, many of the classes being unusually good. Mr. Lang's pens were empty owing to a mistake of the date.

In Pigeons Carriers headed the list with four classes and forty-eight entries. The first Black cock is a splendid bird, with singularly good beak-wattle and fine form; we do not recognise having seen the bird before. Second a Black, which we have often seen in the prize list; rather bow-legged. Third a Dun. We much admired the first Black hen for her fine wattle. In the Any other variety of cocks Blues were first and second, and a White third, while the winning hens were all Blues. Dragoons had five classes and numbered seventy-eight. We thought the first Blue cock singularly good all round, especially in eye. The first Silver and second Blue hen, too, were far ahead of the rest of their class. In Reds and Yellows a capital Red cock was first, and a most beautiful Yellow hen took the cup. Mr. Woodman's first Blue Chequer was a good bird of his kind. Antwerps were legion. We cannot attempt to criticise the Homing birds. In the Short-faced class all the prizes went to fair Red Chequers. Pouters had five classes fairly filled. The cup went to Mr. Baker's Black hen. This struck us as a good award, for she is a splendid bird of immense length and limb. The same exhibitor's Blue cock was first in its class. Tumblers.—Almonds were a capital class; in an entry of only nine an extra third prize was awarded. Light Agates were first and second, and a Kite third, in the Any other variety of Short-faced. A Yellow Rosewing and a Black Ball were first and second in the Flying class. Owls.—Foreign were fair; first and third Whites, second a Black. In the English class for Blue or Silver a magnificent Blue very good in beak was first. We liked Mr. Bulton's very highly commended Blue, which is very rich in colour. In the Any other variety class Powdered Silvers were first and second. We certainly cannot see sufficient difference in this sub-variety to warrant its being entered in a separate class to the former. Third a Yellow. Turbites.—Blue or Silver cocks.—First a small Silver, second a well-known old Silver, third another

Silver, small; we did not quite like its peak. Any other variety, cock.—First-and-cup Mr. Burnell's little Owl-like Yellow; second a very attractive little Red, third a good Red. Hens.—First the Birmingham cup Yellow, second a pretty Silver, third a Blue, rather long in beak. There were other good birds in the class. Magpies.—Blacks were a fine class of fifteen; of course the prizes went to Oxford. In the other class a Yellow was first, Reds being second and third. Archangels were not good; the first-prize-bird was lame, and with almost a shell crest; a Black bird, which we thought should have been in the variety class, was third. Jacobins.—The first Red is a wonderful bird with very fine chain; second a Yellow of the old-fashioned type without mane. The cup went to a beautiful little White, second and third being Blacks. Barbe.—First-and-cup a singularly good Red; second a Black, which we admired for its smallness, for the prevailing fault in the birds now shown is coarseness; third a Black in fine condition. Fantails.—A good flat-tailed bird, with tail coming well down at the sides, in fact when looked at from behind almost a perfect circle; second the pretty little cup hen at both the Palaces; third a large bird with fine motion. Any other variety.—First a Yellow-Swallow, second a Frillback, third a Blue Priest. Mr. Tegetmeyer showed a pretty Pigmy Pouter, which was labelled "wrong class," why we could not understand. Five local classes followed, containing many creditable specimens. We thoroughly approve of this encouragement to local beginners in the fancy.

The *Cage Birds* were a marvellous collection. Canaries had twenty-four open classes and ten amateur classes. In the former, though the classification was so extended, the entries averaged only five to a class, and nine classes were empty. In the latter the entries averaged over seventeen a class. Every variety was well represented, and all looked well and happy in the pleasant temperature of the building. British birds had four well-filled classes, and the three classes for foreign birds were about the best we ever saw. Among the most beautiful exhibits were Mr. Goddard's pair of Pennant's Parakeets, Mrs. Monck's collection of small birds, and the same lady's Merle; resplendent Pekin Robins, Turaco and Harlequin Doves, also Mr. Williams' "Green Leeks," and Mrs. Skurray's pair of Rosellas.

The Committee are to be heartily congratulated on the success of their Show, which attracted a large number of visitors.

The Judges were for Carriers, Pouters, Jacobins, and Owls, Captain Norman Hill; for the rest of the Pigeon classes, Mr. F. Esquilant. For *Cage Birds* Mr. W. A. Blakston.

LOP RABBIT BREEDING FOR COLOUR.

We shall now speak of Lop breeding as it should be carried on, so as to improve the Rabbits' strength and beauty.

Age is important in breeders, as we have already pointed out. When extra excellence is sought after a little more time should be allowed, and the extra expense will be easily recouped. Another important precaution is the prevention of connection between blood relations; cousins even when once removed should not be connected. Size is important in the Lops, and if this suggestion is not seen to young ones of a diminutive type are likely to be the result. Another undesirable effect of in-breeding is causing any hereditary disease to be doubly or trebly represented. A third objection is in the colour, which is the more immediate subject now under notice.

The effect on the colour is always very apparent. It lightens the shade and causes streaks and spots which are not proper; in fact, if the practice be continued a motley colour results, as may be seen in many small country collections where no fresh blood is ever introduced. Some fanciers are so proud of their stock that they do not like to introduce any inferior blood. They would, however, find that a change would be most useful.

Another source of deterioration is a false economy in the number of bucks kept. In poultry a cock is kept for a certain number of hens, but in Rabbits one buck is made to serve almost any number of does, the result being that abortions are frequent, and the young are weak and sickly, and especially bad in colour.

To produce the different colours to perfection is a difficult but withal pleasing task. Experience is the best guide as to how to obtain certain colours, and how to ascertain what colour the litter will be. Lovers of variety, whose name is legion, often put a doe of one colour to two bucks of distinct colours, in the hope of getting a great variety of colour in the resulting litter. Sometimes the young take after the two sires, but more often after only one. A litter is seldom all of one colour, unless the sire and dam were alike, or unless they were bred in-and-in to a great extent. Sometimes the colour of the mother predominates, and very frequently that of the father. In breeding for colour in Lops it is important, therefore, to select healthy and well-developed Rabbits for parents, and to constantly introduce strange blood. At the same time the sire should not be allowed to serve too many does—not more than six or eight, and should not visit a doe more than twice a week.

Grey almost invariably produces grey. If two grey Lops are paired the issue will be likely to be all of that very undesirable colour, with a little white perhaps, and a few white blotches if

the parents were blood relations. If it so happens that they are not from a grey stock a variable litter may be had, but it is not usual. A grey buck and grey-and-white doe will produce a similar result, though the grey will be of a bad shade. A grey-and-black will produce dark greys and poor blacks unless the stock is a light one, when good black-and-whites may sometimes be expected. It is not advisable to keep a grey buck, as very few of the combinations that can be managed with it are particularly good, and the colour is a very hard one to get rid of. Grey-and-fawn gives dark fawns and poor greys. Black-and-fawn gives very dark fawns, some good browns, and occasionally a tortoiseshell. The latter are not very common for the combination, and the colours are generally very intense, producing a handsome and valuable Rabbit. Blue and black are bad combinations, and mostly throw very dark blues. Blue and fawn may produce a poor tortoiseshell, or the colours may be mottled—a very ungainly look. Sooty fawns interbred throw good sooties and dark fawns. Black and black-and-white will produce a litter mostly the colour of the latter, and dark or light according to the shade of the parents. Fawn-and-white and black-and-white crossed will sometimes result in good tortoiseshells, but generally light. Fawns crossed together cause both colours to deteriorate. Blacks crossed together breed very true.

The larger-made and most healthy parent often has the most influence upon the offspring, and this fact should be borne in mind in crossing. Some does cannot be relied on for breeding, since they seldom, if ever, have any young the same colour as themselves. These should be avoided if possible.—G.F.A.

VARIETIES.

WE have before us the schedule of the great *Cage Bird Show* to be held at the Alexandra Palace from the 9th to the 15th inst. It is a most complete one, with thirty-three classes for canaries, twelve for mules, ten for British birds, one for migratory birds, and no less than fifteen for foreign birds. The Judges are for British and foreign birds Messrs. Harrison Weir and Jenner Weir; and for canaries Messrs. J. Calvert and R. L. Wallace. Mr. F. W. Wilson is Secretary of the Show.

WE understand that the provisional Committee of the Poultry Club is soon going to meet to elect the original members. Mr. Cresswell has forms of request for election, and will be happy to forward them to all applicants. It will be a convenience to the Committee if all who wish to join will at once send in their names, so that they may be elected at the first meeting.

THE East of Scotland Bee-keepers' Society will hold its third annual Exhibition of bees, honey, hives, &c., in connection with the Horticultural Society's Exhibition on the 5th, 6th, and 7th of September. The prizes, which are open to all, amount to upwards of £40.

THE total number of agricultural newspapers published in the United States in 1860 was 4051, in 1870, 5871. The number of copies annually issued increased more than 50 per cent. from 1860 to 1870, and the growth of wheat increased in much the same proportion, having been a little more than 173,000,000 bushels in 1860, and more than 287,000,000 bushels in 1870. The value of real property increased 40 per cent. in the same period; and so extremely sensitive is the newspaper barometer that whenever the number in circulation of agricultural journals increases in any particular State you may be sure that the area of cultivated land, the amount of produce sent to market, the value of each farm, and the wealth of each farmer, has increased in the same proportion.—(*Agricultural Gazette*.)

THE *Times* says that many hop planters in Kent have grubbed a portion of their hop gardens. The increased cost of cultivating the crop and the comparative low rate realised for last year's produce consequent on the large importation of foreign hops are the reasons alleged for this step being taken.

WE have received a copy of Piper's "*Poultry-yard Account Book*," published by Messrs. Groombridge & Sons. It is so arranged that the following statistics will be able to be determined:—The number of eggs laid daily, the total amount received for produce of eggs, fowls, and chickens sold, the value of feathers and manure, the number of eggs and fowls used in the household, the amount of expenditure, the number of hens set, the dates of setting, the number of eggs, the dates when due, the number of chickens hatched, and the number of chickens reared, a balance sheet at the end determining whether the transactions of the yard have been carried out at a profit or loss. It will prove a very useful aid to poultry-keepers.

AN experienced agriculturist has written as follows on stock and pasturage:—"If the pasturage is not good it is vain to think of keeping stock of enormous size, unless most of the work is to be done at the manger or crib. The pure Alderney is much esteemed as a butter cow, as everybody knows, by small holders, but they are bad indeed to sell if barren. They look poor outside when they are quite fat within; and a butcher who is trying to purchase will expatiate freely on the lean appearance of the beast,

knowing full well all the time that, to use a butcher's phrase, "she will die well." A cross, of which nearly half is Alderney, will in general, as I think, be found the best; but when we get towards the Welsh borders the Welsh blood may fairly take the place of the Alderneys; and towards the borders of Scotland there are the Ayrshires and other very good breeds; as for the south, who has not heard of the fame of the Dorset butter cows?"

— REGARDING the breed as a whole the superiority in value of the short-horn above all other good beef breeds (and in these islands we have several deserving this character) depends upon maintaining unimpaired its old reputation for combining a tendency to milk in the females and rapid growth in the young of both sexes with sound constitution and a readiness to adapt itself to local peculiarities of soil and climate. No other breed has ever shown the adaptability which the short-horn has. It is not merely that it has forced its way into every breeding district in the three kingdoms, but the colonial and foreign agricultural records tell the same story.—(Field.)

BAR-FRAMED HIVES AND THEIR MANAGEMENT.

NO. 3.

PERHAPS the best mode of carrying on my treatment of this method of managing bees, which is now so popular among all the leading intelligent bee-keepers of the old and new worlds, will be by describing the order of proceeding which may be imagined as taking place in a well-worked apiary on this principle.

Let us begin with the early operations of the year and follow a master in the management of his bar-framed hives. First of all, however careful he may have been to see that all his hives were in good condition before winter—well fed, well provisioned, well protected against wind and damp and snow—he well knows that no two winters are alike. A long frost will keep his bees in close quarters, during which shelter and absolute repose are all that he can provide, and these will bestead him well; but he must be on the alert as soon as more genial weather comes, taking care that the bees have every facility for removing their dead, of which many will be found, sometimes in heaps, lying on the floor-board. He will materially assist his bees and promote their health if he can sweep the boards of all dead carcasses and scraps of wax, which fall from the cells in quantities as the bees open them to get at the honey. In the case of bar-framed hives it is well to set them in the late autumn over a temporary shallow box open at top with a drawer to it, which may be cleansed at pleasure. In this case the floor-board of summer use will have to be removed, so that all offal of every kind may drop directly into the drawer. This drawer, too, will be found very useful for feeding both in the late autumn and in early spring, whenever it is necessary to give supplies of food in larger or in smaller quantities. For here is another peril which may present itself as in unusually warm winters like the present. In such seasons the bees will generally remove their dead from week to week if not from day to day; but in so doing, and in all the increased activity of such a genial time, the consumption of food will be enormously increased. Already, even before Christmas, have we heard voices of tribulation because of hives that have perished of starvation. What may we not expect in the next few months when the bees have been stimulated into early breeding, with which comes always an enormous pressure upon their stores? The eke-like drawer which I describe will be found especially useful now. The best way of using it as a feeder is to place a piece of sound comb flat at the bottom, and to fill this from time to time with syrup or honey as required. In the case of straw hives it may of course be used, only there will be need of careful watching lest the bees should in autumn or in spring commence lengthening their combs downwards, which they will often do. The wooden base of the bar-frame will of course check this tendency. In early autumn I prefer feeding from the top of the hive, but at a later period or in early spring bees take food more readily in the way now indicated, as they must perforce descend to go out of doors. A little fresh food will be very tempting to them here. Indeed I have never examined combs so placed for feeding without seeing bees quietly feeding; whereas in other cases, when feeding by bottle at top, no food has been perceptibly taken down. Cared for and stimulated gently in this way, even where there may be a sufficiency of food in a hive, its population with a good queen will survive well all the perils of winter and should be found in a highly prosperous condition in April or May.

But before this time another care occupies the bar-framer. I allude to his anxiety that the combs in his hives shall be all in good condition, with no excess of drone comb, and with all his combs well arranged as well for breeding as for honey storage; and here his advantage over the straw-skepiot of olden days is enormous. The latter, poor fellow, has no opportunity for proper examination of his hive. There may be a large excess of drone comb, and this may be situated in the worst possible part of the hive. I have known instances of several such combs containing many thousand cells alternating with and surrounding the worker brood cells in such excess that the queen was confined for weeks

to a very narrowed space, until the slow growth of the population enabled her to lay and rear brood in remoter combs, while tempting her to lay an excess of drone eggs out of all proportion to the wants of the hive. This is no uncommon occurrence. The bar-framist, on the other hand, has no such danger to cope with. Choosing a still, warm day when the bees are most active he proceeds to examine his hives. Comb after comb is taken out of each hive. It is carefully examined. The replacement is judiciously made. Cutting out all mildewed, old, or defective pieces, he arranges the combs according to circumstances. If need be, as I myself often do, he will carefully drop into the emptied honey cells here and there (not where breeding is going on) a few ounces of food, taking care to avoid messing the combs or dropping the syrup about. Should it be necessary he will sacrifice a hive which appears too weak (should such be in his apiary) to be likely to do well, and utilise its combs by substituting one here and another there, in this hive and in that, to replace drone with worker combs or *vice versa*, or old and defective combs with such as are whole and fresh. In this way two strong hives can be made out of three or more weak hives, the populations being united and the brood comb added also. Nothing of this sort is possible to the straw-skepiot. Having gone thus carefully through the apiary and put all straight again he looks forward patiently and hopefully to the future, knowing exactly the condition of his apiary, and having made the best provision for all eventualities.—B. & W.

OUR LETTER BOX.

EGGS ILL-FLAVOURED (E. H.).—Wherever eggs have an unpleasant and unnatural taste it arises from one of two causes—either the food on which the fowls are fed, or the substance on which the eggs are laid. This may be easily tested by shutting up a laying hen and giving her garlic or matted barley to eat. In a few days the eggs will taste of the food. We have tried this ourselves, and know it to be correct. Another theory is, but we cannot speak of it with the same certainty, that an egg laid on any strong-smelling substance will contract it. This is explained by the fact that the shell when the egg is first laid is comparatively soft and impressionable, and only hard after contact with the atmosphere. Let your birds be wholesomely fed on plain food and your nests be made with clean straw. Hay nests have a tendency to make eggs taste. Follow nature, and you will have nothing to complain of.

PARROT SELF-PLUCKED (J. C.).—Let it have a tepid bath daily. If the bird will not bathe pour the tepid water over it through the rose of a watering pot.

BOOK (A. Gregory).—Write to Mr. Pettigrew, Priory Vineyard, Sale, Cheshire.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.						Rain.
	Baromet- rical Sea- and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		In. sun.	On grass	
		Dry.	Wet.			Max.	Min.	deg.	deg.			
1878. Jan. and Feb.	Inches.	deg.	deg.	N.	deg.	deg.	deg.	deg.	deg.	In.		
We. 30	30.326	32.5	31.9	N.	37.4	39.6	27.3	73.3	23.3	—		
Th. 31	30.476	32.3	31.9	N.	37.0	40.5	30.3	72.6	25.0	—		
Fri. 1	30.568	31.5	30.3	N.	36.7	41.2	30.2	73.5	24.0	0.016		
Sat. 2	30.396	38.3	37.5	N.	36.3	43.5	30.9	63.0	25.7	0.013		
Sun. 3	30.406	41.0	39.0	N.	37.8	44.4	37.3	63.4	35.6	—		
Mo. 4	30.649	40.5	39.9	N.E.	38.9	42.7	38.3	48.1	35.6	—		
Tu. 5	30.606	37.5	36.7	N.E.	39.0	40.9	36.7	48.1	35.3	—		
Means	30.466	36.2	35.3		37.6	41.8	33.3	60.8	28.2	0.024		

REMARKS.

30th.—Thick white frost; a little snow about 7.40 A.M., fine with sunshine at 9.30 A.M., misty after 4 P.M., but starlight night.

31st.—White frost in morning, bright sunny day with snow-like clouds at intervals; cloudy night.

1st.—Clear cold morning, sunny day, very fine night; stars bright.

2nd.—Damp morning and warmer, a little rain between 9 and 11 A.M., sun-
shine between 1 and 3 P.M.; slight rain again in evening.

3rd.—Dull day, damp evening, and cloudy night.

4th.—Almost constantly overcast, damp, and dull.

5th.—Dull day; very dark from 10 A.M. to 1 P.M., and no sun all day.

Barometer very high, with northerly but very slight wind, and moderate frost in the early part of the week.—G. J. SYMONS.

COVENT GARDEN MARKET.—FEBRUARY 6.

We have no alteration to make from last week.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½	sieve	2	6 to 5 0	Melons.....	each	0	0 to 0 0	
Apricots.....	dozen	0	0 0	0	Nectarines ..	dozen	0	0 0 0	
Chestnuts.....	bus-hel	10	0	30 0	Oranges.....	dozen	0	0 10 0	
Currants.....	½	sieve	0	0 0	Peaches.....	dozen	0	0 0 0	
Black	½	sieve	0	0 0	Pears, kitchen.	dozen	1	0 3 0	
Figs.....	dozen	0	0 0	0	dessert	dozen	3	0 12 0	
Filberts.....	½	lb.	0	6 0 9	Pine Apples...	½	lb.	1 6 5 0	
Cobs.....	½	lb.	0	6 0 9	Plums.....	½	sieve	0 0 0 0	
Gooseberries..	½	bus-hel	0	0 0 0	Raspberries...	½	lb.	0 0 0 0	
Grapes, hothouse	½	lb.	1	6 8 0	Walnuts	bus-hel	5	0 8 0	
Lemons.....	½	100	6	0 10 0	ditto.....	½	100	0 0 0 0	

WEEKLY CALENDAR.

Day of Month	Day of Week	FEBRUARY 14—20, 1878.	Average Temperature near London.			Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h.	m.	h.	m.	h.	m.	h.	m.			
14	TH	Royal Society at 8.30 P.M.	45.4	31.1	38.3	7	13	5	11	1	5	5	44	13	14	26
15	F	Royal Institution at 8 P.M.	46.7	31.1	38.9	7	16	5	13	2	34	6	20	13	14	23
16	S		46.6	30.6	38.6	7	14	5	14	4	7	6	47	14	14	19
17	SCN	SEPTUAGESIMA.	46.7	31.1	38.9	7	12	5	16	5	41	7	6	14	14	15
18	M	London Institution at 5 P.M.	46.2	31.1	38.1	7	10	5	18	7	12	7	23	16	14	10
19	TU	Royal Horticultural Society—Fruit and Floral Com.	46.1	31.3	38.2	7	8	5	20	8	43	7	38	17	14	4
20	W	Society of Arts at 8 P.M. [mittees at 11 A.M.]	45.6	30.7	38.1	7	6	5	22	10	13	7	52	18	13	57

From observations taken near London during forty-three years, the average day temperature of the week is 45.9°; and its night temperature 31.0°.

PRUNING FRUIT TREES.

ON page 111 "A PLAIN GARDENER," has made a plain statement, and an important one. Unquestionably many fruit trees have been greatly benefited by the pruning to which they have been subjected during winter; but, on the other hand, others have about as certainly been rendered less fruitful by the free and ill-considered application of the knife to their branches.

Pruning must be conducted in accordance not only with the habits of the trees, but also in accordance with the nature of the soil in which they are growing. It has been said that if summer-pruning is intelligently performed that little remains to be done in winter, which is true; and it is equally true that the pruning of trees in summer is more effectual in the production of fruit than cutting them severely in winter. Yet although this has been demonstrated over and over again and the fact became public property many years ago, there remains still a considerable amount of pruning to be done during the winter months.

Not infrequently we find that trees have been neglected for one or more years, and usually the longer they have been neglected the more severe is the pruning to which they are subjected, as if to compensate for past neglect. That is a common practice, and it may be added a common mistake. The extreme mutilation of trees during the winter is not promotive of fruitfulness. If the trees have been long neglected, be they Apple trees or Gooseberry bushes, the sudden and violent "opening out of their centres" is seldom satisfactory. The time for benefiting the trees by exposing the branches in their interior has passed if the pruning has been deferred until long after those branches have become leafless and spurless. Such wood cannot be made fruitful, and the only result of such pruning is a mass of young sappy shoots growing where the sun cannot shine on their leaves nor the air circulate freely to render the wood fruitful.

As a rule, standard and bush fruit trees which have been permitted to grow in a natural and semi-wild state had better remain so, and continue bearing on the extremities of their branches until better fruit can be obtained from young and better managed trees. If any pruning is done to such trees it should be limited to a moderate thinning-out of the branches, severing them as close as possible to the main stems; for if the branches are simply shortened the growth in two years will be more crowded than ever, and the result will be more leaves but less fruit than before.

Your correspondent has, however, alluded to the excessive pruning to which young trees are often subjected, and has adduced evidence that a more natural system of growth possesses advantages where large crops of fruit are the main object in view. By rigid summer-pinching and root-pruning a tree can be brought into a bearing state and be made to form a mass of fruit spurs before it has attained a height of 3 feet. But of what real use is that tree? In certain positions such trees are ornamental, but the most that can be said about them is that they are cultivated toys—gardeners'

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and amateurs' playthings. For practical usefulness and for yielding a substantial supply of fruit they are of small value in comparison with trees that have not been crippled by the "skill" of man. Trees managed on the violent restrictive principle alluded to are at ten years of age of no greater value than they were when at five or six years old, and at twenty years old what are they? Answer, Dead or dying. If owners of gardens desire to have the Japanese style carried out because of a certain amount of pleasure it gives they have of course a perfect right to that form of gratification; but do not let the system be misnamed a "profitable mode of fruit culture," because hundreds of "plain gardeners" know that it is not profitable.

Another plan of managing dwarf trees that is perhaps more common than that above noticed is only a few degrees less profitable. This is the system that appears to be alluded to by your correspondent. It is somewhat as follows: Dwarf trees are purchased that are intended to be grown on the summer-pinching principle, but not on the root-pruning system. They are intended to be moderately dwarf and healthy, not extremely dwarf and unhealthy. The idea is good, but is not always carried out properly. So far as the roots are concerned the prescribed rule of culture is adhered to, for they are left unchecked, but the summer-pinching is not thorough nor persistently conducted. For the first year or two when the trees are new and small they are "gone over" with tolerable regularity; but as they grow larger the novelty of the system wears off, and other work presses so hardly that the necessary pinching is not, indeed cannot, be done, and nearly all the pruning is left until winter. The trees are then pruned severely, and properly so far as their shape is concerned. The branches are disposed regularly and thinly, and after the work has been done the trees have a professional business-like look. A "lot of stuff" has been taken out and preserved for flower stakes, and the work is viewed with a complacent half hopeful yet half doubtful feeling that finds expression in a subdued observation that "they ought to do something." And they will do something—they will grow another fine crop of flower stakes.

If the soil is good and the roots are unchecked young fruit trees that receive little or no summer-pinching form long and strong growths, each shoot being from 2 to 4 feet long. With the object of imparting to the trees an agreeable shape, which in itself is commendable, and also with the object of forming fruit spurs, which is again commendable, the breast-wood is cut closely in and the extremities are very much shortened. The object is good, but the mode of attaining it is erroneous. A tree thus operated upon cannot form fruit spurs. The "art" of the pruner and cultivator renders that impossible. The system is in its nature fatal to the formation of fruit buds. They cannot form, for neither time is afforded nor material provided for the accomplishment of this desirable object. In cutting out the flower stakes the fruit-bud-forming material is removed, and time is lost in the trees attempting to provide another supply for that purpose by another season's growth. It is man warring against Nature, and both are losers.

Having, as a plain man, "laid down the law" in a plain

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way, I can fancy some such question as the following being asked, with an air of doubt if not of something more :—"Do you mean to say that the long shoots ought not to be removed, and that if they remain they will form fruit spurs?" I have not framed that question so that it is easy to answer, nor in a form that I would prefer; but have put it as a natural question, even if difficult to reply to categorically.

I will answer the latter part of the question first by saying that if the long shoots are permitted to remain they will form fruit spurs, provided—and this is an all-important condition—that they are so thinly dispersed that the sun and air can act on every leaf. Natural spurs will then form the whole length of the shoots. It will take two years, or it may be three, for the fruit buds to thus form; but form on Apples, Pears, Plums, and Cherries they will, and after that there will be little trouble given by breastwood. The flower-stake-growing period will have passed, and the blossoming and (weather permitting) fruit-bearing era will have arrived. If man will just aid Nature by thinning-out superfluous shoots and prevent others forming in their places the branches left will become clothed with fruit spurs, but if he fights her by cutting off in winter nine-tenths of the growth formed in summer (which is often the case) he will have to wait a long time for fruit. To the former part of the question, as to whether the shoots ought to remain, the answer is "No. It is by man's error that the thicket is produced, and the error must be repaired to give Nature a chance to do her work." The lost balance between root and branch must be restored. Such growths that impede the ingress of air to the tree and obstruct the action of light on the foliage must be removed, and further obstruction must also be arrested at its source—the roots. The roots must be partially checked, or the tree must be wholly dug up and replanted according to its size and vigour, and fruitfulness will ensue.

Trees which have received little or no pruning since they left the nursery grow naturally thinly, but not always symmetrically, and in time become studded with natural spurs and laden with fruit. Where quantity of fruit is of greater moment than the shape of a tree it will be well to only prune the tree very slightly after it is five years old, but merely thin out branches that are likely to cross each other or cause overcrowding. If a symmetrical tree is of importance then it must be pruned accordingly, but the roots must have attention as well as the branches, or fruit will be sparse. As many examples prove, trees both handsome in shape and fruitful in nature may be produced by an intelligent system of manipulation, but this can only be accomplished by preventing the power of the roots overbalancing that of the branches, while at the same time root-action is sufficient to sustain the tree in a healthy state.

The extremes of severe restriction on the one hand and natural wildness on the other have been pointed out, and it is for the cultivator to adopt the mean that will best meet his requirements, but if fruit is the main object let him put much trust in Nature.—A MIDLAND COUNTIES FRUIT-GROWER.

VEGETABLE CULTURE.

CHAP. VII.—CABBAGE AND KALE.

THE Cabbage is found growing wild in many parts of the Continent and in several counties in England. It is one of the most common vegetables, and so easily and generally cultivated that we will only briefly refer to it here. With a little attention and forethought Cabbages may be had fit for use every week in the year. To secure this a small patch of seed should be sown the first or second week in August. The plants from this will be ready for planting by the latter end of September or beginning of October. The ground on which they are to be planted should be deeply dug and well manured. The plants should be planted 18 inches apart. It is an advantage when they become established before winter sets in, and when they do this a little soil should be drawn to their stems. During the winter they require no attention unless the ground becomes sufficiently dry for the Dutch hoe to be run through it. At all events this should be done as early and as often as possible.

In cutting the heads nothing but the centre should be taken, leaving as much of the stem as possible, and in the course of a few weeks these stems emit shoots, which form capital little heads equal in quality and more in quantity than the first produce. This is a most profitable way of dealing with Cabbages. From one piece of ground we always cut from May to December.

The first spring sowing should be made along with the Brussels Sprouts. The plants from this sowing will furnish heads in July and August, and if cut then will supply sprouts well into spring. Another sowing in April or May will furnish plants to complete the circle of the year with Cabbages.

Caterpillars are often most destructive of Cabbages. We have tried many ways of destroying them, and have found that picking them off before they have time to do any harm to be the only satisfactory remedy. This may appear a tedious way of dealing with them, but it is not, and if taken in time it is both economical and efficient.

A vegetable called the Portugal Cabbage is not much cultivated, yet nevertheless it is of considerable merit. It is not so hardy as the common Cabbage, and to grow it properly the seed should be sown and the plants raised in a frame. The midribs of the largest leaves may be cooked and used as a substitute for Seakale.

Enfield Market is the most useful variety in cultivation. Early York is nearly as good, but not so large; Little Pixie, Nonpareil, and Beck's Premier are also good. Red Dutch is cultivated like the others, but only used for pickling.

SAVOYS.

The Savoy resembles the Cabbage in many respects, especially in form of growth. It is cultivated chiefly for autumn and winter use. For a long succession the seed should be sown three times in spring—towards the end of February, the end of March, and the end of April. The earliest plants will be ready for planting in May, and the last in July or early in August. In localities where the winters are severe a good quantity of Savoys should be grown, as they are very hardy and not only endure frost well but frost improves their flavour. Little Wonder and Early Elm are two dwarf-growing good sorts, which may be planted 15 inches apart. Green Curled, Green Globe, and Drumhead are also excellent kinds, but they grow larger.

BORECOLE OR KALE.

Like the preceding this is a first-rate winter vegetable which is not injured by the most severe weather. It is a favourite vegetable in Scotland generally, but especially in the north, where we can remember seeing it in many amateurs' gardens as the only "winter green." The first sowing may be made about the last week in March, and the last sowing a month or six weeks later. Sow thinly, and treat the young plants in the same way as the other Brassicas. In planting Kale, however, the strongest and richest piece of soil in the garden should be selected.

The dwarf-growing sorts are more satisfactory than the tall ones. Cottagers' Kale is an extra hardy sort. Asparagus Kale is worth growing on account of the resemblance it has in taste to that vegetable. As a generally useful Kale none excels the Dwarf Green Curled.—A KITCHEN GARDENER.

DIPLADENIAS.

A FEW remarks on the culture of Dipladenias may not be inopportune at this season of the year. Dipladenias should be in every collection of stove plants; their beautiful flowers are so valuable for cutting purposes, and the plants are indispensable for exhibition, and are equally valuable for home decoration. They are propagated from seed and cuttings, the latter plan being most generally adopted. For cuttings use a mixture of peat, loam, and sand, with a little broken pot dust, and place the pots containing the cuttings in a bottom heat of about 80°. After the cuttings are rooted pot them off into small thumb pots, and subsequently into 48-sized pots, when they will require to have three or four small stakes, to which the young growths can be trained. Afterwards shift the plants into 24-sized pots, and again into larger pots as required. A balloon trellis is necessary, to which the shoots can be trained for blooming.

This is a good time to pot, clean, and tie plants that have been at rest during the past four months. Employ light fibrous loam and peat, with a good mixture of sharp silver sand and dust of broken pots, the whole being well mixed together; pot pretty firmly, and place the plants in a stove with a minimum temperature of 60°; syringe the plants lightly every morning, and in a few days they will commence breaking, and in the course of a week or ten days they will have growths from 6 inches to a foot long. They will now require strings from 6 to 8 feet long according to the size of the plants, to which the growths can be trained. Secure a cord

crossways of the rafters and lights at the top and bottom, and from these stretch other strings in an upright direction, and at a distance of from 4 to 6 inches apart according to room. By the end of May the plants will have grown to the top and will have commenced ripening their young wood, and shortly afterwards will commence showing their flower trusses, which will have from four to six flowers on each. The growths must then be carefully removed from the strings and be arranged on the balloon trellis, bringing the growths round so as to place the trusses of flowers where they can be best seen. They will continue in flower for two or three months, and produce a grand display. Give the plants a little weak liquid manure three times a week during the flowering period. About September withhold the liquid manure, and gradually cease watering preparatory to resting the plants for the winter.

The most useful are *Dipladenia amabilis*, *D. amœna*, *D. Brearleyana*, *D. hybrida*, *D. insignis*, and *D. splendens*. There are other new and old varieties which anyone can select from a nurseryman's catalogue.—D. L.

JUDGING ROSES.

I ENTIRELY agree with "A. G. S., *Irnham*," in his remarks about points being given to a Tea Rose, and, as some of your readers may remember, I have several times urged this point in the Journal; but "D., *Deal*," has always opposed me, and as my devotion to the Teas is so well known I did not like to mention the matter in my article.

I am delighted to hear of the advent of another great grower, for the more the merrier and the better for trade.

A Tea should always have extra points, but how few judges give them! If I may mention names without offence I may say that two great trade-growers will always give them, and they are Mr. Benjamin R. Cant and Mr. John Keynes. Among amateurs I believe Mr. Peach and Mr. Jowitt would always give points, and I need say nothing of myself; but even Mr. Baker, and I believe Canon Hole and Mr. Pochin, will not do so. Here a rule would be of service—"Points are or are not to be given to Tea or Noisette Roses" as the National Society may determine. But I trust for the credit of that Society and of each individual member that the point will be settled in the affirmative.

Here is my case, and I will put it in a logical form:—The most lovely varieties have the most points given them; Tea and Noisette Roses are the most lovely, ∴ Tea Roses should have the most points.

My opponents will say, We deny your minor premiss, or you have to show that the Teas are the most lovely Roses. Is there any doubt on the matter? Is there any rosarian worthy of the name so blind and with such a chronic bad cold in the head that he cannot see that a Tea is infinitely the best of all Roses? Is it form you want? Tell me what form will equal or in any way approach *Souvenir d'un Ami*? Is it colour? Show me a H.P. Rose that can come within a mile of *Maréchal Niel* or *Cloth of Gold*. Is it fragrance? Why, there are none of the Hybrid Perpetuals which have the refined fragrance of *Catherine Mermet*! Compare the bouquet of *Steinberger* or *Marobrinzer* with *Rudesheim* or any of the coarser Rhine wines, and you will form some idea of the difference in fragrance between a bloom of *Catherine Mermet* and a *Charles Lefebvre* or my namesake. If I may make another simile from wine I would say that the latter is like the sweet, sugary, doctored stuff called champagne which is made from the generous Gooseberry, while the former is the Brutt wine of Gonlet or Giesler.

In size I own the Tea is generally deficient, but what of that? Size is the very last qualification, let the midland Rose-growers say what they will, and in all other points the Tea is infinitely the best. So that I maintain that my minor premiss is correct, and that the Teas and Noisettes ought to have the most points. But whether they will obtain them or not in the future is a matter that no fellow can say, least of all a—WYLD SAVAGE.

I DO not think there is in the end much difference of opinion between me and my friend "WYLD SAVAGE" with regard to judging Roses. When I said Give three points to the best Roses in a stand, then choose those only considered worthy of one point, the balance, unless some are bad enough to be cut out altogether, would come under the category of two points, and this is practically what is done when, as he says, three judges go together to judge the seventy-two singles, forty-eight

trebles, or whatever the class may be. Each judge in turn should choose those Roses he thinks worthy of the highest points, and if the other two judges agree there is no difficulty. In cases of doubt two judges' opinions will give the vote. If, when a Rose bloom is named by the judge as worthy of three points the other judges are doubtful, then a closer inspection into the merits of the individual Rose should be made by taking more closely the canons or rules for judging the merits of a bloom, and here I think the National Rose Society would do well to lay down some code of laws. "WYLD SAVAGE" and I are very near in accord with regard to those rules, but at present I want to show that if three judges are judging together, and first all the best Roses are selected out of each stand (likely to be, say, in the first four stands), and afterwards the inferior blooms, those that are left take the medium position; and it simplifies matters to count so many blooms at three points, so many at one, and the balance at two, and make as I said a mere sum in arithmetic.

In cases of doubt and difficulty where, as in some cases, stands Nos. 3 and 4 run close together, it will be necessary to compare the merits of individual Roses of the same kind in the respective stands. For instance, a *La France* in one stand with a *La France* in another, or an *Alfred Colomb*, *C. Lefebvre*, &c., in both stands; then, as I said in my notes in your issue of January 10th, a certain number of Roses will be worth an extra point. I do not think it a good plan to go from one stand to another merely counting the first-class Roses only in each stand; it is better to finish each stand as you go on, taking the number of the stand, then in the stand the number of first-class, second-class, and inferior blooms; and again I say, if three points are given to the first, two to the second, and one to the third, there will in the end the same decision be arrived at, and what "WYLD SAVAGE" calls the accidentals of the stands—that is, the evenness, or freshness, or variety of the different stands are virtually settled in the first onset, instead of having to go back. One thing, however, must always be borne in mind—judges are apt to become more critical as their eye becomes accustomed to very good blooms; in other words Roses are apt to obtain three points at first commencing the judging which might only have two points given afterwards, and it is as well to go back again to the first few stands to see if the judges have become more hypercritical or not. I have also known occasions when, owing to bad weather, heavy rains and wind, and the like, many really good blooms were damaged and discoloured which were evidently better than others which had come from more sheltered quarters, and where judges were obliged in the end to be lenient and not allow an inferior stand of Roses to win merely because the better Roses had suffered from rude Boreas. I do not, of course, mean cases where Roses were overblown, or too far gone, or too much damaged.

And now as to points of merit in individual Roses. Whether the judges actually count them or not, there is a certain standard of excellence which those who are accustomed to the work of judging lay down for themselves. It may be imperceptibly, but still all judges are to a certain extent guided by those points; and I think it will in the end be a great advantage if a code of laws, not such, perhaps, as those of the Medes and Persians, but such as would guide beginners, were laid down by the National Rose Society. "WYLD SAVAGE" and I both agree that form and symmetry, or what he calls shape, comes first. I have taken smoothness of petal, substance of petal, shape of petal next, because virtually the form and symmetry of the individual Rose depends on the petals. "WYLD SAVAGE" places colour, freshness, and substance before size. While quite agreeing with him that too much stress must not be laid upon size, yet the quality, quantity, and vigour, with freshness of the Rose, much depends as a rule on the size, though there are cases of overgrown monstrosities, coarseness of growth and so on, yet these would be at once cut out by the first canon—they would have neither form, shape, nor symmetry. So I am inclined to think on the whole that size is a more important element than either colour or freshness, which may be found in blooms otherwise small and inferior. "WYLD SAVAGE" himself, too, seems to lay a good deal of stress on size, if he allows only two or three blooms to each plant, and talks of a *Marquise de Mortemart* brought to perfection by cutting away all the plant but the single stem which had the flower. If size is to rank last, why disbud, thin-out, &c.? I do not mean, again, that dulness or want of freshness ought to be tolerated, but due allowance should be made for the distance that Roses have to travel and the difficulties that ex-

hibitors have to contend with, and really good Roses ought not to suffer merely because other growers are near at hand.

I am glad "D." agrees with me about Tea Roses, as so much depends where the Roses come from; and then so many Tea Roses are wired to pieces of stick to show their heads to the public, and this I, together with "A LOVER OF ROSE SHOWS," strongly object to. I do not want too much stress upon good blooms of Roses difficult to grow, but when men are judging who are acquainted with the habits of the different Roses these points naturally crop up. I quite agree with "D." as to symmetry in the stand. Large blooms of Paul Neyron and the like injudiciously placed often spoil the harmony of the whole. No doubt moss green and damp both sets off the stand and assists the Roses when coming a long journey, but I question if the moss and setting-up ought to go for much, if anything, in judging between two stands, unless the setting-up in one case was very inferior. I agree with the "SAVAGE," that Mr. Curtis's plan is perhaps ingenious, but it would not work, which is the main point we have to consider. My friend "D." of Deal is right no doubt to break a lance with me about Mr. Radclyffe; still I cannot accept his dictum about Roses against the results of the tabulated elections, not that these election lists will please all parties. "WYLD SAVAGE" did not like that of 1876. I much doubt if he prefers that of 1877. But whatever may be the individual opinions of rosarians the lists have been and are of great use, and would be more so if our nurserymen took more pains in testing the merits of novelties, and did not too often place their own novelties in the first rank; but then every mother thinks her own baby the finest, and due allowance must be made for hobbies.—C. P. PEACH.

THE able article in the last number of the Journal on judging Roses concludes with the following words—"I have written these notes in the hope that they will provoke discussion, and that they will afford a basis upon which Rose-growers may express their opinions. I am aware that there is a feeling abroad that some rules as to judging are to be desired, but I must say such an idea is not shared in by a Wyld Savage."

This paragraph has induced me to give my opinion on the subject. I agree with "D., Deal," that now we have a National Rose Society it certainly is desirable that a code of rules should be drawn up by a Committee of that Society, as a guide, I think, to exhibitors, such as small amateurs and novices in the art. There can be no doubt, if there had been rules prepared by the National last year and affixed to each schedule, there would not have been so many stands of such very indifferent Roses sent, neither would there have been one tithe of the inconvenience and consequently not so many disappointed exhibitors. By adding the rules to each schedule annually every recipient thereof would know, if he exhibited, what would be required of him in his stand to make him a successful competitor; and should he not succeed, his knowing the points on which he was beaten would stimulate him to obtain better things in the future.

I do not imply that rules are necessary for judges, for I contend that no man is qualified to adjudicate on a number of stands of Roses with any degree of fairness to the competitors unless—mark the word—unless he has been more than once a successful exhibitor himself. I mention this because I saw in a former number of the Journal a correspondent saying he was a frequent judge in close contests. Now I have no recollection of his ever having taken a prize for Roses, and for that reason I should look upon his judgment in the matter with suspicion.

Well may "WYLD SAVAGE" say that "H. C.'s" ideas of judging Roses "strike him with amazement," is "simply impracticable," and the "most bewildering one he ever heard of." I consider it to be a Quixotic idea. Picture to oneself judges who are "only required to know a bad from a good bloom." In all probability "H. C." himself would demur sometimes if left to the tender mercies of such experts.

With respect to Tea Roses having extra points reckoned in their favour is to my mind beyond the question. Should there be two or three very good blooms of Tea Roses in a stand by all means let them have every point they merit, but not more than would be given to equally good blooms of Hybrid Perpetuals, otherwise it would be quite as needful to award extra points to some of the more delicate-growing Hybrid Perpetuals over those in the same section of more vigorous and robust growth. Again, who would think of awarding the same number of points to a poor bloom of the Tea Rose section as to a good one of Hybrid Perpetuals? because it would stand thus: If

good Teas are to have extra points bad blooms would be on equal terms with good Hybrid Perpetuals.—J. RIDOUT.

POTATOES FROM SINGLE EYES.

So long as new varieties of Potatoes are sold at the same price per pound as market tubers are sold per peck, so long will those who purchase the novelties adopt the plan of cutting the sets into single eyes as a quick mode of increasing the stock. It is to America that we are indebted for many new and highly prized Potatoes, and America through Messrs. B. K. Bliss & Sons of New York has reduced the mode of cutting them to a system. For the following illustration of

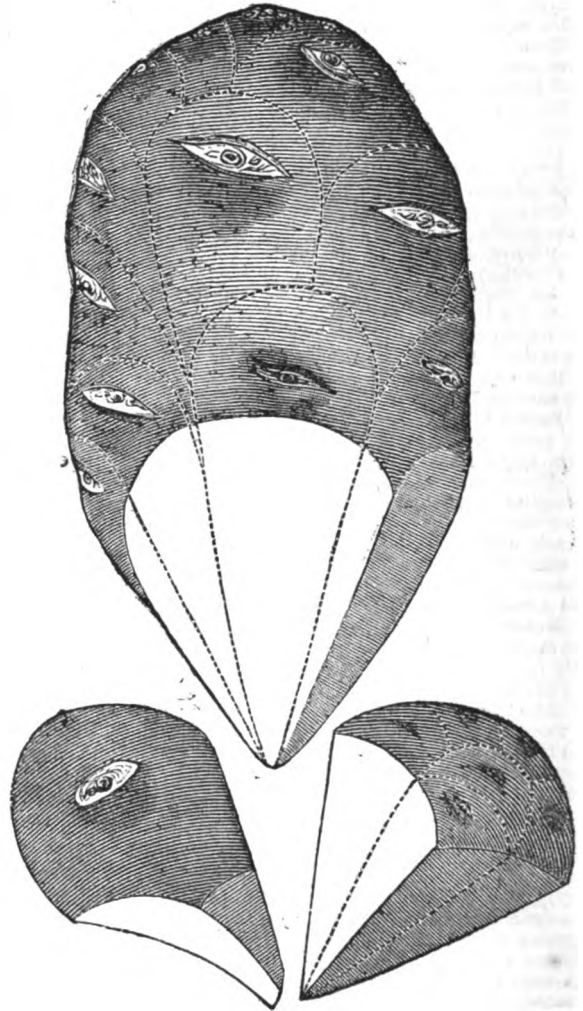


Fig. 19.—How to Cut a Single Eye.

that system, and accompanying notes, we are indebted to Messrs. Hooper & Co.'s newly-published "Gardening Guide," a copiously illustrated book (not a trade catalogue) containing such clearly descriptive notes and sound cultural hints on flowers and vegetables as must be very welcome to amateurs.

"HOW TO CUT A POTATO TO A SINGLE EYE.—Take any Potato and hold it before you, with the stem end (the place where it was joined to the vine) down; it will then be noticed that the eyes are arranged around the tuber in regular ascending rotation from the bottom to the top, similar to the thread of a corkscrew, each eye being a little above and further around the side than the one next below it. Now take the Potato in the left hand with the stem end down, keeping it in a perpendicular position throughout the entire cutting. Take a sharp thin-bladed knife and remove the first eye by placing the knife about equally distant between it and the eye next in rotation above it, sloping it to the indenture left by the stem

(see dotted lines in centre cut), removing the flesh with it. When the first eye is removed turn the Potato around in the hand until the next eye above appears. Remove this one in the same manner, and keep on turning the Potato, removing each eye as it appears in exact rotation, always sloping the knife to the stem. After three or four eyes are thus removed the bottom part of the tuber will have a somewhat pyramidal form (see centre cut). It will be noticed that each eye removed has a similar form to that represented by the cut on the left, and has its proportionate share of the flesh attached.

"After the first two eyes are removed no further trouble will be found until the seed end is reached, and only a little extra care will be required to remove these closely clustered eyes. The cut on the right represents what remains of the Potato after all but the small eyes are removed, while the dotted lines show how to separate each of these. It will be noticed that the base retains the same form throughout, and by sloping the knife each time, and cutting down to the apex of this inverted pyramid (which is the centre of the tuber), each eye will be supported by an equal amount of the flesh, which is to start it into a strong healthy growth. With common varieties, where seed is cheap, many will think this manner of cutting too troublesome; but to those who wish to obtain a large increase from a small quantity of seed, as is necessary to those who buy the new varieties, this manner of cutting so that every eye is saved will prove invaluable."

ROYAL HORTICULTURAL SOCIETY.

FEBRUARY 12TH.

THE annual general meeting of the Royal Horticultural Society was held in the Council-room, South Kensington, last Tuesday, the President, Lord Aberdare, in the chair. The members of the Council present were Lord Alfred S. Churchill, Major R. Trevor Clarke, Major Mason, Dr. Denny, Mr. W. B. Kellock, Mr. William Haughton, Mr. Henry Webb (Treasurer), and Dr. Hogg, (Secretary). Amongst the Fellows present were Mr. A. Grote, Mr. G. F. Wilson, Mr. Wills, Mr. Guedalla, Mr. Bateman, F.R.S., Sir Trevor Lawrence, &c.

Mr. S. JENNINGS, the Assistant Secretary, read the minutes of the last annual general meeting, which, upon the proposition of the President, were confirmed.

THE PRESIDENT said the next business before the meeting was the nomination of the Expenses Committee and of the Auditors. The names were in the list which was in the hands of the Fellows. The Expenses Committee proposed were Mr. F. Campion, Mr. Henry Webb, and Mr. William Haughton; but, unfortunately, Mr. Campion had sent in his resignation, and was therefore disqualified from filling the office, and the Council asked that the name of Lord Alfred S. Churchill should be substituted. One of the Auditors, Mr. Charles Edmonds, had removed into the country, and was consequently unable to perform the duties of an auditor, and hence the Council proposed the name of Mr. R. A. Aspinall, who had kindly consented to undertake the duties of an auditor. "This was agreed to.

THE PRESIDENT said the next business was to appoint scrutineers for the ballot, and he had to submit the names of Messrs. Lee and Bull. This was also agreed to.

THE PRESIDENT.—The next duty I have to discharge is to propose that the report of the Council should be read; but probably it will be on this occasion, as it usually is, the desire of the meeting that the report be taken as read, inasmuch as it has been for some days in the hands of Fellows [hear, hear]. That being so, I hope the Fellows will agree with me and my colleagues that the report is an encouraging and cheering one [hear, hear]; that it exhibits signs, not of disappointed hopes almost brought to the verge of despair, which was the case in some of the preceding reports of the Council of this Society, but that it is one full of animation and of the promise of a healthy life [hear, hear]. We met last year under many advantages, but still many discouragements. These were the falling-off of a considerable number of the Fellows, caused to a very large extent by the great disunion which existed up to that time in the Society. The number of Fellows up to the last two years had been steadily decreasing, and that decrease went on at an accelerating ratio; and the result is, that although during the last year we may be considered to have very much recovered ourselves, the whole number of Fellows is less at this moment than it was at the commencement of 1876. Still, the accession of numbers last year has been very considerable [hear, hear]; and great a sign as this is, we have also other signs that there is a returning confidence of the public towards this Society. The report shows you that while during the past year seventy-nine Fellows resigned and sixty Fellows died, we have had an accession of no less than 256 new Fellows and 281 guinea members, so that you see, in point of fact, the increase of numbers was very great [hear, hear]. That is really a fact which ought to be steadily borne in mind when the prospects of the

Society are taken into consideration. But this is only one symptom of reviving confidence in the Society. Another cause of encouragement is, that the disputes which unfortunately hitherto existed in our meetings, and which undoubtedly produced a very bad effect in the minds of the public, have entirely disappeared. That, too, I consider is a gratifying announcement to be able to make [hear, hear]. The Society determined to avail themselves of this new feeling of confidence by great exertions on their part; and these exertions, I am happy to say, have been successful. It will be agreed, I am sure, on all hands that the fortnightly shows which the Society has held were not only equal but much superior to those of former years, whether as regarded their value in a scientific point of view, in one of horticultural interest, or their external beauty [cheers]. In no year have we had any more magnificent shows [hear, hear]. Then, again, beyond that we have the very best practical proof, in the shape of our very large receipts, of the increased prosperity of our shows and of their increased popularity, when we were able for the first time to invite Her Majesty to these gardens, and also the Prince and the Princess of Wales. I say for the "first time," because I, as President of the Society, steadily refused to invite Her Majesty here until the unhappy dissensions in the Society had disappeared—until there was some sort of general concord amongst its members and a reasonable hope that harmony was established [hear]. We have had the advantage of the presence of the Queen accompanied by some of the Princesses, and afterwards of the presence of the Prince and Princess of Wales, as well of the Duke of Teck, the President of, not the rival, but the sister Society—the Botanical Society, accompanied by the Duchess. The result of all this is, that while in 1875 we received from our exhibitions only £222, and in 1876 only £223, we actually received in 1877 from our exhibitions £812 [cheers]. The daily admissions rose last year to £484, while in the preceding year they only amounted to £245. Then as regards our garden produce, while we sold it to the amount of £340 in 1876, last year it realised £577. All these things show a very great advance on the part of the Society, an improved condition of things in most important points [hear, hear]. There is one other little matter which I think I should bring under your notice before I sit down, and that is the disappearance from the accounts of the £1700 which was placed to the credit of our provincial shows. The provincial shows of the Society had been highly successful, and the existing Council of the day—as they had a perfect right to do—placed the balance of receipts or surplus arising from those shows to a separate account, which was to form a guarantee fund for provincial shows in the future, as they were found to be of great advantage to the Society. But, in other times, another Council which was appointed found themselves in embarrassments and difficulties, and they appropriated this sum of £1700, so specially set aside for a special purpose, to supply the general necessities of the Society. I have no doubt they had a legal right to do so. It may have been unfortunate that they did so, but I think they had as much right to get the money for the general wants of the Society as the previous Council had to say the £1700 was to be specially devoted to provincial shows. The Council thought and felt they had an equal right to say, "It was all very well to set it aside, but now we will apply it to the general wants of the Society." At any rate, whether my view is right or not, and I am bound to say it was confirmed by the opinion of an eminent counsel, the omission of that item from our balance sheet was actually forced upon us by the auditors, who refused to sign our accounts so long as that item of £1700 appeared in them as a fictitious one. We have, as to our future provincial shows, entered into a contract with those who will assist us that, with respect to any surplus to be set aside, neither the Council nor any other body shall have power to lay their hands upon it for any other purpose than that intended by the trustees [hear, hear]. I assure you, therefore, that during the last year we have shown very considerable symptoms of reviving prosperity. We have had a large increase in the number of Fellows, and I have every ground for hoping that the returning flood of prosperity will continue during the present year [cheers]. The only way we can increase our revenue, having tried every other means, is by showing the public we are exerting ourselves to do our best, by showing horticulturists we are doing our utmost to advance the interests of horticultural science, and by showing those who live in this neighbourhood that the Council are making the attractions of these gardens as great as possible [hear, hear]. I mention this because a gentleman—and I am not aware whether he is present in the room or not—has written to me to say he should move for the appointment of a committee of Fellows, who should institute an inquiry to see what can be done to promote the interests of the Society. Well, I think we had quite enough of these committees of inquiry [hear, hear]. I know very well that in many cases of contingency and emergency there is a very great advantage in the appointment of such a committee of inquiry, but at the present time the appointment of such a committee would only show the existence of differences which do not exist [hear, hear and cheers]. I may say without presumption the Council does possess the confidence of the Fellows, and we

are all convinced that anything like a suggestion of disunion must, at the present stage of our history, be of a very injurious character [cheers]. A friend of mine who always says wise things and often witty ones, speaking a short time since of the visit of the Queen to the show, and then talking of the services of my friend on my right (Dr. Hogg) in the science of pomology, remarked that besides promoting the cultivation of Apples the Council had been successful in expelling the apple of discord [cheers and laughter]. I hope it has been thoroughly extirpated, and therefore I am very anxious that nothing should be done to show the appearance of want of harmony in the Council [hear, hear]. We are giving the strongest outward visible signs to the public of our existence and of our capacity for usefulness. Last year, from all the information I have received, our shows were not—could not be—surpassed in usefulness and brilliancy; but I believe even they will be surpassed by the shows of this year. We have made arrangements for an exhibition in May extending over four days; and we have made preparations for holding a show at Preston which will also last four days, and I hope it will be an accession not only of revenue but of credit [hear, hear]. The only cloud hanging over our fortunes is the existence of the arrangement entered into with Her Majesty's Commissioners as to the termination of our agreement with them in case that at the end of December this year we should not have an income of £10,000. Well, our income last year amounted to about £5780, which is a long way from £10,000; but considering the great depression which had existed in the country as well as the general desire of people to diminish their expenditure and not to increase it, that was not a year in which we should expect to do what we pledged ourselves to do our best to accomplish. At the same time I know Her Majesty's Commissioners are watching our proceedings with an attentive eye. I know they are aware we are doing our best to attain the object for which we were incorporated, and that all of them will have the justice to see the difficulty under these adverse circumstances of bringing together within the limit of time stipulated such an income as that of £10,000. Under these circumstances I am strongly inclined to hope—I speak my own opinion—that Her Majesty's Commissioners will extend the period so as to give us the advantages of the improvements we may not unreasonably look for in those better times when people will be more inclined to become Fellows of the Society than they were during 1877 [hear, hear]. Taking all the circumstances together we may consider that the report which I ask you to adopt presents a hopeful view of our situation, and therefore it is with confidence that I beg to move it be adopted.

Lord ALFRED S. CHURCHILL seconded the motion.

Mr. GURDALLA took the same view of the situation as their noble President did. Under his able presidency they were slowly mending for the better, and he felt sure that if some arrangement with the Commissioners could be made the Society would be able in the course of a few years to increase their income to £10,000. When he looked at the great mansions in that neighbourhood he could not but think of the serious injury which would accrue if the gardens were built upon, and it was to his perfect astonishment that all round about in the neighbourhood did not endeavour to keep up the gardens [hear, hear]. No doubt horticultural science could be carried on elsewhere than in South Kensington, but was not the latter the place in which the late illustrious Prince Consort, whom they all lamented, initiated the gardens? [hear, hear]. He should be very pleased if the Commissioners would come down to £7000 income for next year, and that if the income of the Society were so increased the Commissioners would not adopt the strict letter of law. He did not wish to say this in the way of a menace or threat, but the Commissioners must know the Society was not going to surrender without an effort. The Society had done a good deal; there were the debenture holders and other interests to be looked to, and he should be very glad in this matter to take the word of their noble Chairman that the Council would do their best. With extraordinary aids a forced income might be got together. Above all things he thought it desirable that the Commissioners and the Council should work in harmony together. With these observations he supported the motion for the adoption of the report [hear, hear].

Mr. GEORGE F. WILSON was sorry to hear the £1700 was put out of chance of recovery. He spoke feelingly, as he was on the Council when the first provincial show took place. When it was proposed to hold the show the Commissioners of the Exhibition of 1861 said they could not sanction the expenditure, as it was not for the purposes of the South Kensington estate; but the Council took the responsibility on themselves. He thought it was very hard, that being the case, that the money should go for the general purposes of the Society. It was distinctly said that any money earned by that show should be devoted to horticultural and not to general purposes [hear, hear]. He wished to say he should have liked all the guinea members should have votes, and he had reason to know if that were the case there would be a great accession of members. However, it was distinctly said when the guinea members were accepted they should have all the privileges of membership except the vote, and yet he was sorry to find that when the great show was held in June—and one-

guinea members took the greatest interest in the shows—an announcement was made by the Council to the effect that the Fellows and debenture holders were to be admitted at twelve o'clock, while the guinea members and the public were to be admitted at one o'clock. Now it was, he repeated, distinctly said that the guinea members were to have every privilege with the exception of that of voting. He hoped that would be put right this year [hear, hear]. As to the last paragraph in the report in which the Council "earnestly urge upon the Fellows the imperative necessity of using every effort to increase their numbers so as to comply with the condition imposed by the last agreement with Her Majesty's Commissioners, and secure their tenure of the South Kensington Gardens and the emancipation of the Society from its difficulties," he, for one, hoped that would be the only tenure by which the gardens would be held.

The PRESIDENT said he strongly agreed with Mr. Wilson that no distinction as to the admission of guinea members should be made. He now put the motion "That the report be adopted."

The motion was carried unanimously.

The following officers were unanimously elected:—President, Right Hon. Lord Aberdare; Treasurer, Henry Webb; Secretary, Robert Hogg; Expenses Committeemen, Lord A. Churchill, Henry Webb, and William Haughton; Auditors, R. A. Aspinall, John Lee, and James F. West. The names of vacating members of Council were F. Campion, W. B. Kellock, F.L.S., and T. M. Shuttleworth. The following were elected to fill the above-mentioned ordinary vacancies:—C. J. Freake; Sir Trevor Lawrence, Bart., M.P.; and J. T. D. Llewellyn.

Mr. WILLS asked whether any preparations for the Show at Preston were going on, and if so if they were progressing satisfactorily.

The PRESIDENT replied that a local committee of influential gentlemen had been appointed, and they were acting with the Council. There was every reason to expect that the Show would be a good one, and up to the present moment all the preparations were going on satisfactorily [hear, hear].

The meeting then separated.

REPORT OF THE COUNCIL TO THE ANNUAL GENERAL MEETING OF 12TH FEBRUARY, 1878.

The operations of the Society have, during the past year, been carried on with a completeness and efficiency which the Council did not venture to hope for at the time of the last annual meeting. The Scientific, Fruit, and Floral Committees were most assiduous in the performance of the duties which they have undertaken respectively, and the results of their valuable labours, and of many of the practical trials and experiments made at Chiswick, the Council hoped would have been made public in the *Journal* of the Society, which they attempted to recommence. Unfortunately the illness, which terminated in the lamented death of Mr. Andrew Murray, whom they appointed to be its editor, prevented this expectation being realised. They have recently obtained the services of Mr. Samuel Jennings in the double capacity of Assistant Secretary and Editor of the *Journal*, which they trust will shortly re-appear in a form worthy of the Society.

The plants, flowers, and fruit shown at the ordinary meetings of the Society always present objects of great interest from their rarity or unusual excellence in point of cultivation, but the limited space available for their exhibition in the Council chamber necessarily restricted their numbers and interfered with their effective display. To remedy this inconvenience to some extent, and to enable Fellows to enjoy with more comfort to themselves the beauty of these exhibitions, the Council held them in the conservatory during the past season. The experiment proved successful beyond expectation; the cordial co-operation of the chief exhibitors rendered these unpretending meetings worthy of being classed as regular shows. The Council have the gratification of knowing that they afforded much pleasure to the Fellows, and they will resume them in March next. Fellows' tickets and small book orders will admit as on ordinary days. Cards giving full information as to the dates of the shows and meetings for this year will be ready for distribution as soon after the annual meeting as they can be printed.

The magnificent shows which were honoured by the presence of Her Majesty and the Prince and Princess of Wales, and the show of Covent Garden produce, in which the Duke and Duchess of Teck showed a lively interest, were in every respect worthy of the Society. The Council hope that the two former will be quite equalled, if not exceeded, in extent and beauty by the four-days show which will be held in May next.

The Council have during the last two years wished to organise a provincial show on a grand scale; but the practical extinction of the fund formerly set apart for this purpose by the appropriation of £1700 to other uses (which they have been advised cannot be recovered, and which, therefore, does not appear in the balance sheet), and the failure of their attempts to obtain sufficient local support, have hitherto prevented the accomplishment of their wish. Now, however, a guarantee fund has been raised and arrangements made at Preston which justify the show which has been announced being held there. The form of guarantee

provides for the future security from misappropriation of the profits specified in it, and the Secretary will be happy to receive the names of those willing to become guarantors.

the names of those willing to become guarantors.

At Chiswick many valuable experiments have been made, the results of which will shortly be published in the Society's Journal. The state of the garden is most satisfactory. The great vinery, probably the finest of its kind in the world, the Vines in which are twenty years old, produced an abundant crop, which, at the reduced prices at which the Grapes were sold to Fellows, realised £820. The Vines planted against the glazed wall for identification and description have been removed, and their places will be filled by others bearing fruit of greater value. The Vines removed are retained in the garden for distribution to Fellows. Full descriptions of them have been drawn up and will be published. The Peach trees trained as single "cordons" are well worthy of inspection; their crop was good and of high quality. Trials have been made of 77 varieties of Tomatoes (some grown in pots, some in the open ground); of 153 samples of Turnips, sown at different seasons; of 67 samples of Savoy's, and 188 samples of Cabbages, of all of which except the last reports are ready. The last, which have been tested as to their value for summer and autumn use, have been again planted to ascertain their value for use in spring. Of most of the typical kinds photographs have been taken. In the present year collections of Peas, Lettuces, Beets, and Leeks will be subjected to critical examination, and experiments will be made on the comparative value of artificial manures. The collection of herbaceous plants has been rearranged and largely added to. The Council have also procured collections of some of the more ornamental kinds of these plants and florists' flowers, including Delphiniums, Pæonias, Pyrethrums, Iris, Ranunculus, Crocus, &c., which have been separately planted. A rockery, for the stone of which the Council are indebted to their Treasurer, Mr. Henry Webb, has been formed opposite the entrance to the great vinery, and planted with rock plants, many of which of great interest were presented by the Royal Gardens, Kew: the Royal Botanic Garden, Edinburgh; Mr. G. F. Wilson, Mr. George Maw, and others. Trials have been made of various kinds of Zonal Pelargoniums (which were successfully grown, both in pots and planted out in the open border), also of varieties of Canna, Begonia, Epacris, China Asters, Stocks, and various sorts of hardy annuals, of all of which full reports have been prepared.

The liberality of Mr. Elwes, a member of Council, who has procured the seeds of many plants from the Sikkim Himalayas, will enable the Council to distribute some of these, which are of great beauty and rarity, among the Fellows in the course of this year.

The Council are desirous of opening up correspondence with persons residing in the Colonies and abroad who would send home seeds and plants, and they hope that all who can facilitate their efforts in the introduction of new plants will communicate with the Assistant Secretary to that effect.

520 packets of cuttings of fruit trees, 1695 plants, 195 packets of cuttings of plants, and 15,850 packets of seeds have been distributed among Fellows during the past year.

The mode of heating the glass houses has been altered, and an economy in the consumption of fuel thereby effected.

A new carriage entrance to the garden has been opened.

At South Kensington repairs to a considerable extent have been carried out, but much remains to be done in this respect.

The Saturday promenades recommenced on the 19th January last.

The ordinary receipts for the year have exceeded the expenditure by £11 17s. 2d., to which must be added the sum of £836 19s. 7d., levied upon and paid by the Society in past years in respect of rates, which should have been paid by Her Majesty's Commissioners, and which they have repaid to the Society.

The Council hope to be able to continue and extend the operation of the arrangement with the debenture holders referred to in their recent circular.

During the past year 255 new Fellows and 281 guinea Members were elected ; 79 Fellows resigned, and 60 Fellows died.

In conclusion the Council earnestly urge upon the Fellows the imperative necessity of using every effort to increase their numbers, so as to comply with the condition imposed by the last agreement with Her Majesty's Commissioners, and secure their tenure of the South Kennington Gardens and the emancipation of the Society from its difficulties.

REVENUE ACCOUNT FROM 1ST JANUARY TO 31ST DECEMBER, 1877.
EXPENDITURE.

EXPENDITURE.		£	s.	d.	£	s.	d.
Establishment Expenses:—							
Salaries	.....	239	8	8			
Wages	.....	183	14	7			
Printing, Stationery, and Cards	.....	176	0	11			
Postages	.....	96	18	9			
Miscellaneous	.....	76	11	1			
Gas	.....	15	9	11			
Library	.....	7	10	0			
					861	13	11

Special Expenses in relation to Horticulture:—

Journal.....	69	1	3	
Fruit and Floral Committees.....	91	16	1	
Scientific Director.....	57	10	0	
				248 7 4

Chiswick Garden Expenses:—

<i>Chintic Garden Expenses:—</i>			
	£	s.	d.
Rent, Rates, Taxes, and Insurance	318	0	7
Labour	982	13	2
Implements, Manure, Coals, and Coke	248	5	8
Repairs	85	1	6
Trees, Plants, Seeds, &c.	31	11	2
Miscellaneous	134	4	6
Superintendent's Salary	160	0	0
Water	13	5	4
	1,910	0	11

Kenington Garden Expenses:—

Rates, Taxes, and Insurance	581	8	2
Superintendent's Salary	100	0	0
Labour	528	5	6
Repairs	318	9	7
Coke and Manure	45	8	9
Implements	34	3	3
Water	38	8	11
Miscellaneous	109	6	7
Reading Room	19	10	11
Bands	65	0	0

Exhibitions :—

Advertising	288	15	0
Prizes and Medals	208	2	0
Bands	162	9	6
Sundries	230	3	5
Superintendent of Flower Shows	25	0	0
Judges' Fees	4	4	0

Suspense Account :—

Cash on Deposit	340	0	0
Balance	747	5	11
	<u>£6,866</u>	<u>2</u>	<u>8</u>

INCOME.

	£	s.	d.	£	s.	d.
One-fifteenth Life Compositions as at 1st January				787	18	0
Amount received from Her Majesty's Commissioners in Repayment of Rates on Annexes	336	10	7			
Deposit Interest on same	3	0	5			
				340	0	0
Annual Subscriptions				3,942	4	6
Exhibitions				812	7	9
Promenades				77	2	3
Daily Admissions				407	1	1
Garden Produce				517	19	5
Packing Charges				6	6	0
Miscellaneous Receipts				25	6	8
				£6,966	3	8

BALANCE SHEET, 31ST DECEMBER, 1877.

DEBTOR.

To Sundry Creditors on open Account.....	£20 17 9
Life Composition Account.....	2,903 18 0
Received on additional Debenture (C. J. Freake).....	5,000 0 0
Suspense Account, Cash received from Her Majesty's Commissioners for Overpaid Taxes and Interest thereon to date.....	540 0 0
General Revenue.....	522 18 5
	<u>£9,087 14 9</u>

CREDITOR.

	£	s.	d.	£	s.	d.
By Capital Expenditure				7,232	10	9
Annual Subscriptions—Outstanding, 1876	601	2	6			
" " 1877	444	3	0			
				945	5	6
Sundry Debtors—Garden Produce				174	11	1
Due for Advertisements—J. C. Fox				30	12	0
Cash at Bankers—on Deposit Account	340	0	0			
" on Current Account	368	0	9			
				708	0	9
Petty Cash in hand				6	14	1
				£3,087	14	2

JOHN LEE, 1 Addition

JAS. F. WEST, } Auditors.
W. HENRY MARSH, } Accountants.

February 5th, 1878.

NOTES FROM MY GARDEN IN 1877.

It is always more pleasant to look back on successes than failures, even though failures by exposing defects may lead to greater efficiency hereafter ; but I suppose there are few owners of a garden that do not speak disparagingly of the last year. From all parts of the country the same tale has been told—a mild winter succeeded by a cold spring, an indifferent summer and cheerless autumn ; and in whatever part of the garden an amateur took pleasure his pleasure was considerably damped (I mean no pun) by the failures he experienced. Everything in the latter part of the winter promised an unusually early season, but all were in truth very late—at least three weeks beyond their time : the only exception that I found to this, strangely enough, were Christmas Roses (*Helleborus niger*), which were at least three weeks before their proper season for blooming. And this leads me to say that herbaceous and

alpine plants, being so much more independent of season than many things, afford a very real and well-nigh certain pleasure; and even in my small garden there was rarely any week in the year when that pleasure was not experienced. From the time that (long before the Snowdrops) the early and most sturdy little Cyclamens that seem to defy all weathers threw up their bright and pretty blossoms until the late-flowering Asters closed the autumn there was always something to be looked at.

One of these early gems which I have been for years trying to succeed with, and which many a more practised hand has had to confess he has failed to grow properly, is the lovely *Gentiana verna*. I am hopeful that I have at last found out how to do it, as my plants not only bloomed last year but are promising to bloom again this spring. My plan has been to take out the soil in a small portion of the rockery and fill it in with peat into which small pieces of stone were placed; the Gentians were then planted, and one or two plants of the very minute *Arenaria balearica* planted amongst them. This very rapidly covered the space, ran in amongst and indeed covered the Gentians. These, however, soon asserted their presence and pushed up through the *Arenaria*, and are so doing again. In fact it is an imitation of the way in which they are found in Alpine regions—never growing on the bare ground, but developing their beauties amidst the short and dense pasture along with *Silene acaulis*.

Another plant that has done well with me is the beautiful North American *Cypripedium spectabile*. This was planted in a moist spot of the rockery somewhat in shade, in peat, and last year the flowering stem had two blooms upon it, which is not usual, and portends vigour I imagine. I have added two more plants this season, and hope they may succeed equally well. During the summer months when the weather was at all dry it was frequently watered—sometimes twice a-day, as it is so very fond of moisture. The finest clumps of it that I have seen in the open ground were with my friend Dr. Stiles of Spalding, who had them in a shady corner in his walled-in garden, where they were luxuriating freely; and of those grown in pots I have never seen any equal to those which my friend Mr. Broome exhibited at Manchester. As a hardy perennial it has few equals, and should be cultivated wherever there is a spare nook for such beauties.

Amongst the novelties that I had this season was *Senecio pulcher*, and one, although to some persons' taste somewhat coarse, is nevertheless a very showy and handsome flower. The colour is purplish crimson; the habit of the plant is vigorous, the thick fleshy stems rising from the centre and bearing several flowers which are from 3 to 4 inches in diameter. Being an autumnal bloomer it will be a valuable addition to the herbaceous border.

One of the most persistent bloomers in the garden during the summer and autumn months has been the very showy *Aquilegia chrysantha*. There was hardly any time when I could not go and gather a few of its blooms for arranging in small vases.

Is there any way of growing properly the curious little *Sedum arachnoideum* out of doors? I have seen it in fissures in the rocks near the Mer de Glace in Switzerland where there could hardly have been a particle of earth, and during the hot weather it must have been roasted, and yet it was in great beauty. With me it loses that striking peculiarity, the thread-like web that overspreads it. I have seen it in great beauty in Messrs. Lucombe & Pince's nursery at Exeter and in some other places, but have failed hitherto to grow it as I wish, although I have endeavoured to imitate its habitat as I saw it by placing it in fissures in the rockery.

I have had several new *Delphiniums* in the border, but there are few of them that I prefer to some of the older varieties, such as *Belladonna* and *Madame Henri Jacotot*. The beautiful blue of the former is unequalled by any other variety. One of the most useful plants I have found for cutting is the little *Hop Marjoram* (*Origanum*), so often seen in cottage windows, but perfectly hardy and very fragrant. It adds quite a character to the vases in which it is placed, and tends to take off the stiffness that too often is noticeable in them.

Another somewhat neglected plant, but very useful for the same purpose, is the old *Gladiolus Colvilli alba*, while of course no garden can be without *Anemone japonica* *Honorine Jobert*, which with me is quite a weed and has to be treated accordingly.

These few rambling notes are something like my garden itself, where no method prevails, fruit, vegetables, and flowers being mixed up together; but I have thus run on because

whatever may have been my trials as a florist last year, and they were neither few nor slight, I was ever finding some fresh beauty in the limited number of herbaceous plants to console me when *Auriculas*, *Gladioli*, and *Carnations* only caused heavy sighs and groans.—D., *Deal*.

CEPHALOTUS FOLLICULARIS.

THIS little gem, well known as the Australian Pitcher Plant, has its leaves formed into pitchers, covered with a lid, in a manner similar to those of the famous *Nepenthes*. It was first discovered and described by the French botanist Labillardière, in Lewins Land, more than fifty years ago, and has since been found in many other of the Australian marshes. To lovers of curious plants there are few more attractive than *Cephalotus*; and from its tiny size there are few collections in which it might not have a place. It is somewhat remarkable, however, that it is now comparatively seldom met with, and seems indeed in danger of disappearing from our list of cultivated plants. This we believe is caused, to some extent at least, by a mistaken idea that it is difficult to manage. Having paid considerable attention to its requirements, and been successful in its cultivation, we venture to give a few hints which may be profitable to beginners.

The best time for shifting is in spring immediately before growth commences, using a compost of rotted sphagnum moss, fibry peat, small potsherds, and sharp sand in equal proportions. In potting the old soil should be removed from the roots so far as can be done without damaging them, and the plant raised slightly above the level of the rim of the pot; and as water should be given liberally, particularly during the growing season, provision should be made for thorough drainage by a plentiful allowance of crocks. After potting the plant should be placed in moderate bottom heat in a situation where it can have all the light possible without being exposed to the direct rays of the sun. A moist atmosphere is indispensable to its well-being; and when it is grown in a mixed collection of plants it will be necessary to cover it with a bellglass, either with a hole at the top or slightly tilted at the edge, to allow the vapour to escape, and to admit a constant supply of fresh air. The roots should never be allowed to get dry; and it will be found a good plan to place the pots within others of a larger size, the vacant space being filled up with moss or rough peat. A temperature of from 50° to 60° while in active growth is all that is either necessary or even desirable—many of the failures in its management being due to too much heat, which induces quick but sickly growth, whereby the constitution of the plant is so weakened that it will almost certainly die off as winter approaches. A period of rest is also necessary, and in winter the plants should have a lower temperature, say from 40° to 50°, and only be watered when necessary, to prevent the roots from becoming completely dry. Green fly is a great enemy to this plant, and a constant vigilance should be exercised, so that it may be checked immediately on its appearance.

The best mode of propagating it is by division of the tufts, which is most successfully done when the plants are shifted in spring, the young plants being put into small pots individually or grouped together into large ones for the first season.—HUGH FRASER (in *The Gardener*).

PRIMULA AMGENA.—A successful cultivator of this attractive plant informs us that he has just been potting the plants of this *Primula* from the open ground, and has never seen finer crowns. After the plants ceased flowering last spring a portion of them were planted out in tolerably rich and light soil in a shaded situation, the remainder being kept in pots. Those that were planted out are, he states, far more robust and promising than those which have remained in pots throughout the season, and he intends adopting the planting-out system with all his plants, treating them the same as *Spirea japonica*.

KEEPING GRAPES.

BEFORE briefly referring to the effects of the condensation of moisture on the berries as accelerating their decay, I wish to say that I did not intend to attribute egotism or anything of the kind to Mr. D. Thomson. I simply accepted his own admission that it is some occult operation of Nature and not the skill of the cultivator that mainly contributes to the remarkable preservation of the Grapes at *Drumlanrig*. I

endeavoured to point out the manner in which Nature gave her valuable aid, and in the absence of sufficient evidence to the contrary advanced by Mr. Thomson I should still think I was right. I grant that that good cultivator has emphatically asserted that the district in which he resides is remarkable for hot days and clear nights, but I also remember that he has with at least equal emphasis asserted the great prevalence of cloud in Dumfriesshire. Under these circumstances I will do what is usual in such cases—take the mean. If “the condensation of moisture under glass on every leaf, twig, and bud is most remarkable,” how is it that he can grow Duke of Buccleuch Grape, as I have seen it there, without spot or blemish? A grower, who appears to have been singularly successful with that Grape, has stated on page 81 that it will not set nor finish well with much atmospheric moisture.

I will now pass on to “R. M. R.,” who has taken the starch out of my collar. If it is the rule for some Grapes to keep well and others of the same variety to decay rapidly when “bottled” and placed side by side in the regular temperature of a room, it is evident that some other cause than the deposition of moisture on them exerts an important influence on their keeping or non-keeping properties. I am quite content for this to be so, but have a great longing to know what that cause is and how its influence acts? I need not repeat my experience, but only ask that it be kept in mind as a small (I care not how small) element in connection with future observation on an important matter which it is clear is but imperfectly understood. I may remark that I am tolerably well acquainted with Mr. Thomson's mode of Vine culture, and I have great respect for my friend, whom it is not long since I visited. I hope it will not be long before I visit him again; but I do not promise then to tell him that I am—A NORTHERN GARDENER.

AN ELECTION OF PLANTS FOR TABLE DECORATION.

WITH a view of placing before the public the very best fine-foliage plants for table decoration, the Royal Horticultural, the Crystal Palace, and other horticultural societies both in London and in the provinces have from time to time offered prizes for a limited selection of plants suitable for the purpose named, to be grown in 6-inch pots.

The Wimbledon Horticultural Society has followed this example now for several years, and a very spirited contest has annually been the result. This being the case, it is not to be wondered that the subject of table plants came up for discussion at one of the meetings held in the gardens of Sir H. W. Peek, Bart., M.P. This led to an election of plants. The members of the Society, who are practical gardeners, voted the following twenty plants as the most suitable foliage plants for table decoration, and they are here named in the order of merit as determined by the returns of the electors.

1. *Cocos Weddelliana*.—This has the premier place, and is undoubtedly the most elegant small Palm in cultivation, and its high appreciation for table decoration was acknowledged by everyone present. When from 15 to 30 inches in height it is very beautiful; the stems are slender, and leaves long and gracefully arched.

2. *Aralia elegantissima*.—This was also considered to be one of the best of table plants. Its stem is straight, and is furnished at short intervals with slender palmate leaves supported on long footstalks; the leaflets are deeply serrated and gracefully pendulous; it is also very free in growth.

3. *Pandanus Veitchii*.—In a small state this plant is very graceful, and is much appreciated as a table plant. It is of a light green colour and beautifully striped with broad lines of pure white, the points of each leaf gracefully curving towards the pot. It is easily propagated by suckers, and the smaller and better coloured the suckers are when taken off, the more graceful and pendulous in habit become the plants.

4. *Croton angustifolium*.—Although one of the oldest of Crotons it has not yet been surpassed for table purposes by any of the many recent introductions. The long pendulous habit of its narrow yellow leaves is most effective. Cuttings are easily struck in a strong bottom heat, carefully retaining all the foliage possible. When struck the plants should occupy a light situation to bring out their bright yellow variegation.

5. *Dracena terminalis*.—Notwithstanding the marvellous increase of new varieties of *Dracena*, this, the oldest and best-known, is able to hold its own against all rivals, and there is more of this species cultivated annually for Covent Garden Market than of any other. The leaves are of a dark green

colour, richly shaded with brilliant scarlet; the upper part of the plant is sometimes wholly scarlet.

6. *Dracena gracilis*.—This is an elegant little plant with narrow bright shining green leaves gracefully curved, and so pleasing in habit that it ought to be grown even in the most limited collections.

7. *Cyperus alternifolius variegatus*.—This plant is so well known and so popular as not to need further description.

8. *Geonoma gracilis*.—This very beautiful dwarf-growing Palm is in no way inferior to the more popular *Cocos Weddelliana*. It is very graceful, and the whole appearance of the plant is very light, and has a pleasing softness in its green and finely divided leaves, which renders it a most useful plant for decorative purposes.

9. *Croton Johannis*.—This valuable *Croton* has the same graceful habit as *C. angustifolium*, the leaves attaining a length of 20 to 24 inches, and are beautifully marked with a bright orange yellow.

10. *Dæmonorops plumosa*.—This elegant dwarf Palm has fronds of a rich bright green colour and handsomely plumed. It is both distinct and graceful, and is admirably suited for table embellishment.

11. *Dracena Cooperi*.—This somewhat resembles the well-known *D. terminalis*, but is more pendulous in habit, and its leaves are more constant in their bright red colour.

12. *Adiantum cuneatum*.—This plant is so useful that it is grown in larger quantities than any other Fern. The electors had in view merit rather than novelty, hence this old favourite won a honourable position in the election.

13. *Pandanus elegantissimus*.—This when in a small state is an admirable plant for the table. It has dark green leaves, glaucous at the base, and is armed with red spines. It is somewhat upright in growth, yet is very elegant.

14. *Aralia leptophylla*.—This *Aralia* possesses a free growth combined with gracefulness of habit, which renders it a great favourite with many gardeners for the purpose in question.

15. *Croton majesticum*.—The regularly drooping, narrow, elongate leaves give this plant a very elegant character. It is very free-growing, and when well coloured it is peculiarly attractive by artificial light.

16. *Ananassa sativa variegata*, or Variegated Pine Apple, was considered by several members to be worthy of a higher place in the twenty. It is light and elegant, and has the advantage of keeping in a room a long time without injury.

17. *Reedia glaucescens*.—This highly distinct evergreen stove plant is remarkable for producing its miniature flowers at the margins of its Acacia-like leaflets. The flowers close at night and the leaves recurve, and the plant is therefore only suitable for daylight dinners. It is singularly chaste and attractive.

18. *Cyperus laevis*.—This is a decided acquisition to our table-decorative plants, having beautiful whorls of bright green leaves with feathery grass-like tufts of flowers in the centre. It is dwarf in habit and effective.

19. *Caladium argyrites*.—This *Caladium* is, when well grown, beautifully coloured, and is suitable for the table either as a dwarf plant employed singly, or for grouping in conjunction with other plants.

20. *Adiantum scutum*.—This plant, which completes the list, is one of the most graceful of the Maidenhairs, and is valuable for many decorative purposes.

The above plants were chosen more from their usefulness for the purpose suggested than from their rareness or scarcity. —J. W. MOORMAN.

DUKE OF BUCCLEUCH GRAPE.

I THINK the thanks of the readers of this Journal are due to Mr. Douglas for his reply to the remarks of your correspondent “COLUMBUS” concerning this Grape. “COLUMBUS” may have succeeded in pleasing his employer by growing it under favourable circumstances, for no doubt a good bunch of this variety is very fascinating, and as it is new would induce one to grow it largely. I have read a good deal about this Grape since its introduction, and most of your readers will agree with me that the opinions expressed were very conflicting, the majority being against “The Duke.” I have tried to grow it myself grafted on the Black Hamburgh, and I find it to have the following bad habits:—It is a bad setter, a shy bearer, a small buncher, a bad keeper, and an irregular breaker. Last autumn I saw some not bad bunches of it at Drumlanrig Gardens, and also at Carlisle International; but taking it as a whole it was the most miserable class in the Exhibition.

Not long ago I was talking to a nurseryman about Vines, and he told me that he had heard that the raiser of "The Duke" had pitched all his surplus plants to the rubbish heap in disgust. Can this be true?—B. G., Co. Down.

CORDICEPS ROBERTSII.

WE some time ago received from one of our correspondents a letter informing us of the receipt from New Zealand of a

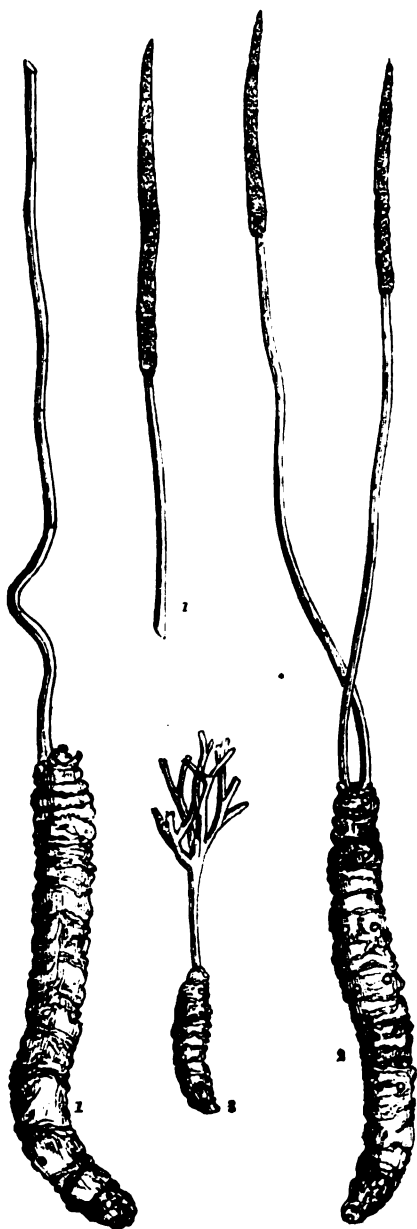


Fig. 20.

1 and 2.—*Cordiceps Robertsii*, parasitic on caterpillar of *Hepialus virescens*.
3.—*Cordiceps Sinclairii*, the other New Zealand species, parasitic on the larva of an orthopterous insect.

"vegetable caterpillar," *Sphaeria Robertsii* by name, with a description taken from some encyclopædia as follows—"This creature, about the size of the little finger, feeds upon the leaves of the Rata. . . . At a particular stage of its growth the caterpillar drops from the tree, burrows a few inches into the earth, and there appears to change its nature and become a vegetable. for from the nape of its neck up sprouts a shoot of 6 or 8 inches long, rising above the surface something like a

rat's tail. The body of this insect, still quite perfect, assumes, shoots and all, a sort of ligneous character, and seems if kept dry to be reasonably indestructible." This description is the result of some misconception, and fails to indicate the exact nature of its subject, which is one of considerable interest. We lay before our readers the following brief account. The "shoot of 6 or 8 inches long" is really a fungus and called *Cordiceps Robertsii*, this and several other genera having been separated from *Sphaeria*. It is not uncommon in New Zealand. The caterpillar on which it invariably grows is that of *Hepialus virescens*, known as "Hotete" by the natives. It is doubtless attacked in a living state, which we should not have said had it not been in one case otherwise stated. Every now and then we meet with work of past time, in which it would seem that from insufficient knowledge or information people were afraid to follow where Nature directed. We mean that in this case it perhaps seemed rash to say that the caterpillar would be attacked when alive; and, to give further instance, we have just seen a drawing in which the artist was afraid apparently to copy Nature as he saw it, thinking it ought to be otherwise. The time of attack is when the caterpillar buries itself in the ground to undergo metamorphosis. It takes an upright position and is a little underground, so that the lower part of the fungus is also below the surface. It is supposed that in the act of working the soil the spores are lodged in the joint of the neck. In one account—the most trustworthy we know of—it is said to be found usually under tree Ferns, and in another we are informed that it feeds on the Sweet Potato (*Batatas edulis*).

The plants known by the Maori name of "Rata" are *Metrosideros robusta* and *M. florida*, but we are unable to find that it is a feeder on these plants; and indeed it is not likely if, as we are informed by an entomological friend, that the *Hepialidae* always feed on roots. We have not been able to discover that more than the one caterpillar is ever taken possession of by this plant. In all cases the fungus springs from the back of the neck of its victim just behind the head, the reason of which we have already given. It grows erect, and so the upright position of the caterpillar accounts for the preserved specimens being, the one with the other, always in a line. It is slightly flexuous, and when dry is more or less corky in texture, and the height varies from 2 to 8 inches. When not shrunk by the process of drying it may, as mentioned in the extract quoted, be something like a rat's tail, but even in the growing state it must be much more slender and equal in diameter. Usually the specimens are solitary, though sometimes two grow together as shown in our sketch. To this we may now allude. 1 and 2 form the subject of this notice. The original caterpillars are extremely hard and tough, almost chalky within, which is extremely curious when it is considered how soft they must once have been. The change, we imagine, has been wrought in great measure by the mycelium of the fungus. Besides being hard and dry they are of course much shrivelled, so that our drawing shows little of the form of the living caterpillar. The fungus is sometimes blackish, oftener of light brown colour. The position of the fructification is indicated at the top by a slight change in form and by the roughness of the surface. 3 is *Cordiceps Sinclairii*, the only other species recorded for New Zealand. It grows on the larvæ of an orthopterous insect, and, as is easily seen, is a very distinct species.

There are several very interesting near allies to the above. One attacks the wasp, and is called *Guepes végétales*. The fungus reaches its full development during the life of the insect, which is reduced to the last stage of debility. Another on a caterpillar is a celebrated drug in the Chinese pharmacopœia, used only by the Emperor's physician. It is said to have similar properties to the celebrated Ginseng; and we have record that Father Perennin was raised from a state of extreme weakness by its use administered in the most appetising manner of being dressed in the body of a duck.

SPIRÆA THUNBERGII.

ATTENTION was recently directed in our columns to the great value of this *Spiræa* for the decoration of conservatories during December and January. As was observed on page 68 this shrub was the principal feature in the beautiful conservatory of C. Seely, Esq., Furzedown Park, on the arrival of the family at their suburban residence about the middle of January. Fifty plants or more were then laden with thousands of their small white flowers, and the effect produced was as chaste as it was striking. We have since had inquiries relative to this

shrub, and one writer suggests that the plant referred to is *Spiraea crenata* and not *S. Thunbergii*; but on comparing the accompanying figure, which was engraved from a spray obtained from Furzedown, with the following description from Don's Botanical Dictionary, it will be perceived that the plant which is so successfully forced by Mr. Laing is rightly named. Thunberg's *Spiraea* is described by Don as "a shrub growing

3 to 6 feet in height; leaves linear-lanceolate, acuminate at both ends, smoothish, sharply serrated towards the apex; fascicles of flowers sessile, lateral, racemose in consequence of the leaves falling off; calyx glabrous. Native of Java and Japan. Flowers white."

It may be observed that the leaves are not shown as "sharply serrated" because the foliage was young, and in that state



Fig. 21.—*SPIRÆA THUNBERGII*.

resembles almost exactly that of the Stitchwort (*Stellaria graminea*), still the serrations are manifest, and the plant is no doubt *S. Thunbergii*. *S. crenata* is described by Don as having "leaves obovate, rather pubescent, crenulated at the apex; corymbs stalked; pedicels puberulous. Native of Spain, &c." Our correspondent may be right that Thunberg considered his plant as being a variety of *S. crenata*; but Linneus did not, neither did Siebold, who considered it distinct and named it *Thunbergii*.

Spiraea Thunbergii has been long known as a pretty early-flowering deciduous shrub, but its real value for quick forcing and conservatory decoration in the depth of winter has only been known to a few. The fact is now made known to many. How quickly it may be forced into flower and how long it continues attractive are testified by Mr. Laing. "Five dozen plants of *Spiraea Thunbergii*," writes Mr. Laing, "were lifted from the open ground and potted on December 21st. They were placed in an intermediate house having a temperature

of, 50° to 55°, and they were in full flower on January 14th. They are now (February 5th) still in full flower, and are likely to continue for another fortnight." It will be readily admitted that a plant so charming as this is, that can be potted from the open ground in December and be in full flower in three weeks and then continue attractive for five weeks, is an acquisition. Some of the plants were more densely covered with flowers than the spray now figured, and the flowers are as well adapted for wreaths and vases in rooms as the plants are effective in the conservatory.

Thunberg's *Spiræa* requires the same general culture as *Dentzia gracilis*, and is easily propagated by cuttings or division.

EARLY PEAS.

It appears from your columns that many doubts exist in the minds of some of your correspondents of the possibility of raising early Peas in the open ground without protection. I have grown early Peas for the last five years most successfully, and never once suffered the least inconvenience from frost. My mode of proceeding is as follows:—I make the first sowings about the 15th of November in the open ground (shelter of any kind I deem most pernicious), the drills being opened a few days previous with a draw hoe 9 inches wide and 1½ inch deep, with a space between the rows of 9 feet. The weather being favourable I prepare the seeds by steeping them for a quarter of an hour in pure paraffin oil previous to sowing; I then remove the oil and sow the seeds. In covering I take the adjacent soil with a spade and lay it evenly on the seeds, taking care not to disturb them, nor do I use the rake after covering. This done I have never felt the slightest inconvenience from rats or other vermin, though they are very numerous in this locality. As soon as the plants make their appearance above ground I apply very small stakes for support, after which I have each side of the row dug as deep as the digging fork will allow, permitting a little of the soil to drop in between the stakes. The deep digging has the effect of opening the ground and absorbing the superfluous moisture from the rootlets of the Peas, while the stakes keep the plants open. Even now I apply nothing for protection, as in my experience it interferes materially with the after-success of the crop. I can say without hesitation that young Peas will stand 20° of frost uninjured without the slightest protection. My early Peas are now 9 inches high, and wearing a most flourishing appearance, although the thermometer registered 16° of frost on two successive nights—viz., January 31st and February 1st.

The sorts I select for first sowings are Sangster's No. 1, Carter's First Crop, and Dickson's First and Best. I never fail to find those come in early in May. Laxton's Prolific and Laxton's Supreme, when sown at the same time, form a good succession.

My object in communicating these notes is to assure those who do not possess the conveniences of cold frames or other artificial aids that they can raise as good or even better crops of Peas without them.—A. CAMPBELL, *Muckross Gardens*.

On February 4th I sowed four boxes of Dickson's First and Best, and three boxes of William I.; the boxes are 2½ feet long, 4 inches deep, and 10 inches wide. They are placed in a cold pit under glass; no fire heat is given to them. They are planted out on a warm south border early in March. The stakes are put to them as the planting proceeds. When all is finished a net is carefully stretched over them, keeping them safe from the sparrows. The crops will be all gathered by the third week in June, and the ground planted with Celery; and on the Celery ridges are planted Lettuces, Little Pixie Cabbages, and Cauliflowers. By the time the Celery is ready for earthing-up all those intermediate crops will be used. The Celery is never earthed-up until it is full grown. This system having proved so satisfactory with me, I have not sown a Pea in the autumn for nearly sixteen years.—RICHARD NISBET, *Ascarby Park Gardens*.

THE AURICULA WOOLLY APHIS.

I HAVE so often told my tale of woe in the Journal that I had secretly determined I would not mention the nasty subject again, but Mr. Llewelyn's letter compels me to break silence, for like him I am again a sufferer. I commenced top-dressing last week, and the length of my face may be more readily imagined than described when the first plant that I operated upon was choked all round the collar by the beast.

I thought to myself, Well, I must give up Auriculas. Happily it was not so bad. I went on dolefully, but as yet I have only found the aphid bad on three plants, and slight in a few others; but still there it was, and I can only account for it by supposing that some nidus must have been left in the crevices of the collar which has developed itself since. I adopted more heroic measures than Mr. Llewelyn, for I turned the plants completely out, brushed collar and roots with a tolerably hard brush, and repotted them. Of course this destroys the hope of a bloom from them; but if I can save my collection I shall be only too pleased. I shall of course watch carefully and see whether it appears again.—D., *Deal*.

HINTS ON GROWING VEGETABLES.—No. 3.

SEED SELECTION.

ANOTHER important point in which the note-book and garden plan spoken of on page 88 prove useful is in aiding us to choose our seeds for another year. Whilst we are sitting by our fire listening to the rain with the pleasant reflection that, whilst the sound adds to our sense of comfort indoors there are plenty of 3-foot drains carrying it off our borders, we can arrange our crops for the coming season, for we know exactly how many square yards of ground there are in any particular quarter, and if we find it necessary to increase the production of any vegetable our plan enables us to tell immediately how much room we can spare and the quantity of seed we shall require. Are we puzzled by the multitude of names and the commendations of each variety which we find in our seedman's catalogue? Our note-book will come to our assistance, and will tell us what kind does best in our soil and what we may rely upon for the future, and so saves us much hesitation now, and disappointment in summer. In all gardening matters, but more especially in the choice of varieties, there can be no fixed rule for the whole country. "What is one man's meat is another man's poison" is true here, and each must choose and select for himself to suit his soil, his climate, and last, but not least, his demand. But though this is certainly the case with fruits, it is not so much so with vegetables, and therefore I venture to give a list of seeds I am ordering this spring, with the reminder that my soil is stiff clay, with late cold springs and early dripping autumns.

Beet.—Dixon's Select Crimson.
Dwarf French Beans.—Negro Long-podded.
Borecole.—Cottager's Kale and Rosette Colewort.
Broccoli.—Autumn.—Walcheren. *Winter*.—Snow's Winter White. *Spring*.—Cattell's Eclipse and Suttons' Late Queen.
Brussels Sprouts.—Scrymger's Improved.
Cauliflower.—Early London and Walcheren.
Cabbage.—Early York, Wheeler's Cocoa-nut, and Dwarf Elm Savoy.
Carrots.—Early French Horn and James's Intermediate.
Celery.—Dwarf Sandringham White and Williams's Matchless Red.
Cucumber.—Telegraph. *Melon*.—Little Heath.
Lettuce.—*Cos*.—Bath Imperial (black-seeded), and Paris White. *Cabbage*.—All the Year Round.
Onions.—White Spanish and James's Keeping.
Peas.—*Early*.—Dixon's Best Early,* Improved Sangster's No. 1, William I.* *Mid*.—Laxton's Fillbasket,* Laxton's Supreme, Dr. Maclean,* Sandford Green Marrow.* This is a most splendid Pea, a very heavy cropper, and excellent in flavour. Can anyone tell me where it can be obtained, as I procured my stock from a private source, and am nearly out of it? *Late*.—Emperor of the Marrows,* Veitch's Perfection, and Laxton's Omega.
Radishes.—Long Scarlet, Turnip, and French Breakfast.
Potatoes.—Myatt's Prolific. *Parasit*.—The Student.
Turnips.—Early White Dutch and Orange Jelly.
Vegetable Marrow.—Long White.
 The above will prove quite sufficient for a medium-sized garden. The Peas marked with an asterisk are specially recommended.—A YORKSHIRE AMATEUR.

SPARMANNIA AFRICANA.

I DO not wonder at Mr. Iggulden's question—"Why is it that we so seldom meet with or see mention made of this plant?" I read the notes on page 91 with much pleasure, for I have been growing the same plant, comparatively speaking, in ignorance. Last summer I had a few plants given to me which had evidently been starved in 48-sized pots; they were

shifted into pots a size larger, and placed outdoors with other greenhouse plants. The *Sparmannias* certainly did not make much progress with this treatment; but, however, I placed them in a greenhouse in the autumn, and they soon began to show signs of flower even in this cramped and starved state. Each of these plants has now four and five trusses of flowers open and about to open. A more pleasing greenhouse plant at this season I do not know. I shall certainly adopt the mode of culture recommended by your correspondent. I hope to hear more about this useful greenhouse plant, for I am sure it is very valuable for winter decoration.—J. P.

ORCHIDS AT KEW.

THE Orchid house at Kew is now very attractive, there being many beautiful and interesting species in bloom. Amongst the most noteworthy that arrested our attention on February 5th are the following:—

Angræcum eburneum and *eburneum virens* are strongly represented. These species are admirably adapted for large houses, but where only small collections of Orchids are grown they are scarcely to be recommended. *Ansellia africana* is in flower, also on the side stage of the warmer compartment may be seen some recently imported plants of a splendid variety; the pseudobulbs are much shorter and stouter, the flowers are larger and brighter-coloured, and have not the dull appearance of the type. *Ania latifolia* has light brown petals with a creamy white labellum, but is not at all showy. *Barkeria Skinneri* is in flower in the cool house; it flowers from the extreme points of the deciduous pseudobulbs. The flowers are of a dark purple colour, very pretty, and last a long time in good condition. This *Barkeria* is not nearly so popular as it deserves to be, and I think no collection would be complete without one or more plants.

The *Cattleyas* are now making a grand display. Of *C. labiata* there are several varieties, all varying somewhat in colour from pure white to dark rose. The flowers of *C. Lindleyana* are beautifully marked, though not altogether very showy. *Cypripediums* are numerous, and are represented by *C. insigne*, *insigne Maulei*, *biflorum*, *venustum*, *barbatum*, *longifolium*, *Roetzlii* with four long flower spikes, *Harrisianum*, *Sedeni*, and *Schlimii*, which is a little gem; the flowers in shape and colour resemble very closely the hardy *C. spectabile*. *Cœlogyne cristata* in the cool house is now sending up numerous flower spikes, and when the flowers are fully expanded they will be greatly admired by many a passing visitor.

Dendrobiums are now strongly represented, the beautiful rich colours are almost dazzling to the eyes. *Dendrobium crassinode* growing in a basket suspended from the roof is looking very gay; the sepals and petals are pure white, tipped at the ends with light violet, and so also is the labellum, with, besides, a large yellow blotch. *D. Freemani* is beautifully in flower. It is one of Mr. Bull's introductions, and apparently is a variety of *D. lituiflorum*, to which it is referred by Reichenbach. It was named in honour of its discoverer in Assam. The pretty *D. Devonianum* is flowering freely on blocks of wood suspended from the roof. This is one of the few *Dendrobies* having a lip so deeply fringed. *D. Wardianum* is flowering profusely from well-ripened deciduous pseudobulbs, and too much in its favour cannot be said, as the flowers may be used to great advantage in several ways. *D. barbatulum* has pure white flowers which proceed from the points of the pseudobulbs. *D. densiflorum* and *fimbriatum* are also in bloom; the former has beautiful yellow flowers, the latter is of a darker yellow, with a large dark blotch at the base of the labellum. The two last-named species are a great contrast to their surrounding brethren of several colours.

Dendrochilum glumaceum is extremely graceful with its drooping flower spikes: in the warmer compartment may be seen a very fine specimen, and heavily laden with bloom. The individual flowers are not very showy, but when produced on a spike almost as close as they can possibly grow they have a very pleasing effect, and that which makes the flowers more appreciated is their delicious perfume.

Epidendrums are not at all showy with the exception of one or two species; but one that is very much admired at Kew is *E. xanthinum*, which is of beautiful golden yellow. *Lycaste Reichenbachiana* has light green sepals and pure white petals; the labellum, which is also pure white, has a beautiful row of fringe round the margin, giving the plant quite an unique appearance. *L. gigantea* is much in the same way as the last

as regards shape of flower, the lip being of a dark brown colour. *L. macrophylla* is also in bloom. *Masdevallias* are few, this genus being represented by one solitary species, *M. ignea*. I had almost overlooked *Mesospinidium aurantiacum*, or what, perhaps, would be better known to the Orchid world as *Ada aurantiaca*, which is very pretty, and the colour of its flowers is so seldom met with in Orchids that we must certainly give it a good word. The individual flowers in this species are not very attractive in themselves, but when one beholds a flower spike a foot or more in length it then makes together quite a display.

There are several *Odontoglossums* in bloom, of which the following are the best. The first on the list is our old and highly esteemed friend *O. Alexandra*, which is always appreciated when in flower; *O. pulchellum* and its varieties are charming, the single flowers look so much like Lily of the Valley at a distance; *O. Pescatorei* is so closely allied to *Alexandra* that it is difficult to distinguish between them; *O. cordatum* and *O. gloriosum* are well worth growing; a plant of *O. Bictonense* at the end of the cool house is producing nine long spikes of flowers. There are several forms of *Oncidium aureum*, all varying some little in size of labellum, which is of rich golden yellow; *O. cheiroporum* is very compact in growth and free-flowering, and is always welcome; *O. cucullatum* is extremely pretty, the lip being of a light lilac colour, beautifully spotted with dark crimson; *O. ornithorhynchum* is one of the most dwarf-growing of all the Orchids, and produces very pretty flowers, but which unfortunately are anything but agreeably scented. We now come to the most lovely genus of all Orchids, *Phalenopsis*. *P. Schilleriana*, *P. amabilis*, and *P. rosea* are those flowering at the present time, the former with strong branched spikes of bloom. *Stenorrhynchis speciosa* is evergreen and terrestrial, requiring a liberal supply of water at all seasons. The flowers are produced on stems a foot or 18 inches long, and are bright rose in colour. Even when the plants are not in bloom the foliage is always handsome.

Trichopilia sanguineolenta, better known to Orchid-growers as *Helsia*, is now very attractive, and its labellum is in contrast to the sepals and petals just as occurs with *Zygopetalum Mackayi*, the lip in each case being attractively veined, while the other parts of the flower are dull-coloured. In addition to the above are many of lesser importance, to which we might refer had we not already so long a list.—W. G.

NOTES AND GLEANINGS.

COL. TREVOR CLARKE writes to us as follows on **FLOWERING LILIUM THOMPSONI**:—"After reading my friend Mr. George Wilson's description of the method employed by the distinguished liliologist Herr M. Leichtlin to produce the flowering habit in *Lilium Thompsoni*, I deprived five plants of their offsets during the growing period, using for the purpose a pointed stick. The leaves were preserved, however, or the greater part of them. Those five plants are now, every one of them, throwing up healthy flower stems."

—We have received the schedule of prizes to be competed for at the PROVINCIAL SHOW of the ROYAL HORTICULTURAL SOCIETY, to be held at Preston from July 10th to the 13th inclusive. The classes number one hundred exclusive of those for implements, &c. The prizes are sufficiently liberal to command good competition. In the open class for sixteen stove and greenhouse plants the amounts offered are £30, £20, and £10. In the amateurs' section the chief prizes are £20, £15, and £10 for twelve stove and greenhouse plants in bloom; £12, £7, and £5 for twelve plants, six to be in bloom; £10, £7, and £5 for six plants; £20, £15, and £10 for twelve Orchids; £10, £7, and £5 for six Orchids; £12, £8, and £7 for nine fine-foliaged plants, and similar amounts for the same number of Ferns. The nurserymen's section opens with £25, £20, and £15 for a group of one hundred miscellaneous stove and greenhouse plants, space not to exceed 250 superficial feet, artistic arrangement to be considered in judging. A corresponding class for one hundred hardy plants is apportioned £20, £15, and £10; £15, £10, and £7 are provided for twelve new and rare plants not in commerce; and £12, £8, and £6 for new plants sent out in 1876, 1877, and 1878. For twelve stove and greenhouse plants in bloom £15, £10, and £6 are provided; for twelve Orchids, £15, £10, and £7; for twenty Conifers the awards are the same as for Orchids; and for twelve specimen Clematises the amounts offered are £12, £10, and £7. The chief prizes in the fruit section are £15, £10

and £5 for a collection, and £5, £3, and £2 for a collection of not less than ten varieties of Strawberries. Prizes are also offered for Grapes, Pine Apples, and other fruits. Nine classes are provided for vegetables, seven for Roses, and about twenty for the productions of cottagers and artisans. Gold medals are offered for the best stand of horticultural implements and appliances, and for the best exhibition of horticultural buildings and structures. Nine silver medals are also provided for separate horticultural implements specified in the schedule. Liberal prizes offered by Mr. Bull, Messrs. James Carter and Co., Messrs. Sutton & Sons, and Messrs. James Veitch & Sons, will be competed for on the same occasion.

— AT the ordinary meeting of the ROYAL HORTICULTURAL SOCIETY to be held on the 19th inst., Mr. Jennings will address the members on "The Cyclamen—its Cultivation and Classification."

— A SUCCESSFUL meeting of gentlemen and gardeners was held in the National School, Putney, on the evening of the 8th inst., for the purpose of establishing a CHRYSANTHEMUM SOCIETY FOR THE DISTRICT OF PUTNEY, FULHAM, AND WANDSWORTH, for "promoting the superior cultivation of the Chrysanthemum and other flowers and fruits." The chair was ably occupied by the President of the Society, Baron Pollock, who, after alluding to the fertile soil of the Thames valley and the general excellence of the crops, complimented the numerous gardeners on their attendance, and promised to aid them in carrying out their object, which he felt was a worthy one. An excellent code of rules was submitted to the meeting, and, subject to a few alterations, was passed. The movement—which was originated by Mr. Pithers, Mr. Whittaker, and a few other gardeners—has met with a considerable share of support. Some influential gentlemen have consented to become Vice-Presidents, and a goodly number of gardeners have already been enrolled as members of the Society. Nearly fifty of these attended the meeting, and all appeared to be animated with the same feeling—namely, to make their new Society prosperous. As the district is a populous one, and as the rules do not exclude members from other localities subscribing, some good autumn exhibitions may be expected to result. Hearty votes of thanks to the Chairman and the School Committee terminated the proceedings. Mr. Moore, Richmond Road Nursery, Putney, is the Secretary.

— WE understand that T. Graveley, Esq., of Cowfold, Sussex, has kindly undertaken to act as Local Secretary for the NATIONAL ROSE SOCIETY for Horsham and neighbourhood; and that Capt. Edward Carter will act in the same capacity for Brighton and the neighbourhood.

— THE usual monthly meeting of the SCOTTISH HORTICULTURAL ASSOCIATION was held in 5, St. Andrew Square, Edinburgh, on Tuesday the 5th inst. There were over a hundred members present. The President occupied the chair. Thirteen new members proposed at the last meeting were duly admitted, and fifteen new names were proposed and seconded for admission as members. The subject for discussion was "Vine Borders," opened by Mr. W. Priest, Newbattle Gardens, by reading notes stating in a plain and practical manner his experience in their construction. He laid great stress upon having a depth of border, say from 2½ to 3½ feet, and sloping from back to front, and that the soil should consist of good loam, lime rubbish, crushed bones, and charcoal. The paper gave rise to an animated discussion in which many members took part, the general feeling being the principles advocated by the essayist were sound and thoroughly practical, but that gardeners would require to be guided by the circumstances of their individual case. During the discussion the experiments of Mr. Hunter, Lambton Castle, were adverted to. The proceedings terminated with a vote of thanks to Mr. Priest. The next meeting will be devoted to the annual election of office-bearers and business arrangements for the next year.

— THE report and schedule of the RICHMOND HORTICULTURAL SOCIETY afford gratifying evidence of past prosperity and give promise of future success. The funds of the Society have steadily increased since its establishment, and each succeeding exhibition has been better than before. The Society is fortunate in being established in a populous and prosperous district, also in receiving the active support of the resident gentry. This is evidenced by the long and influential list of donors to the special prize fund, which is headed by H.S.H. the Duke of Teck, the President of the Society. The fourth Exhibition is to be held in the Old Deer Park on June 27th. The prizes offered are on a liberal scale, especially those

provided in the division for exhibitors beyond the limits of the Society's district. A new feature is established of offering gold, silver, and bronze medals of specified value, the exhibitors to have the option of taking the prizes in medals or money. In the division limited to exhibitors in the Society's district the classes are numerous and the prizes substantial; and good provision is made for cottagers' products. In addition to the Society's prizes and the special prizes provided by upwards of thirty ladies and gentlemen of the district, Messrs. James Carter & Co. offer a silver cup for a collection of vegetables, and Mr. Turner, Slough, provides silver medals for Roses and Carnations. Liberal prizes are also offered by Messrs. Sutton & Sons for Cucumbers and Melons, and by Messrs. Rollisson & Sons for Orchids.

— THE supply of BROCCOLIS IN LONDON is now very great; piles of splendid heads are seen in almost every green-grocer's shop and on costermongers' barrows. The mild winter has doubtless contributed to the full and early supply of this esteemed vegetable.

— As a tribute of esteem to Mr. J. P. Allan, who has recently become a partner in the well-known firm of Messrs. Stewart and Mein of Kelso, his many friends in the district invited him to a dinner, which was largely attended. The chair was occupied by Mr. Wemyss, gardener to Sir G. H. S. Douglas, Bart., supported by Mr. Fowler, gardener to Lord Polwarth, and Mr. J. M. Mitchell of Kelso. The Chairman spoke in flattering terms of the great professional ability and activity of Mr. Allan, and the compliment was suitably acknowledged. The name of the firm will in future be Messrs. Stewart, Mein, and Allan.

— THE *Australasian* states that the PHYLLOXERA VASTATRIX has appeared in Australia. This is a great misfortune, since colonial wines are making their way in Europe, and Grape-growing is becoming an important industry at the antipodes.

— AN amateur, writing to us on PARAFFIN LAMPS FOR EXCLUDING FROST, states that he has employed one for three years in his small greenhouse with great satisfaction, and he would not hesitate if required to place a smaller lamp in a frame. He describes the reservoir of the lamp, which is of block tin, as resembling an inverted soup plate. This forms the base and supports a moveable cylinder a little more than a foot high and 6 inches in diameter, with an aperture at the bottom for the burner to pass through, and an ornamental lid at the top with apertures for the escape of heat. After the heat has been turned "full on" for a quarter of an hour the cylinder becomes quite hot, and is afterwards kept sufficiently so by a very small flame. If he "fires hard in severe weather" he places a shallow tin dish of water on the top in place of the lid. No injury whatever has resulted from the lamp, but on the contrary he has "two hundred Geraniums which have been preserved through the present winter at the cost of one gallon of oil."

— A CORRESPONDENT sends us the following extract from Hinchliffe's "Over the Sea and Far Away," 1876, p. 70, on LAPAGERIA ROSEA AT HOME:—"Near the copper-smelting works of Lota, a few miles south of Concepcion, Chile, among the headlands of the coast, 'are the haunts of the Copique or Lapageria rosea. In spite of its exquisite beauty and seeming delicacy it is said to be almost the only plant of any kind that can exist under the influence of the sulphurous smoke of the smelting house, and Dr. Cunningham mentions having seen it 'in a flourishing condition, winding round the skeletons of shrubs killed by the smoke.'" This suggests that this beautiful climber would be suitable for town greenhouses, owners of which might well try the plant in smoky districts.

WORK FOR THE WEEK.

KITCHEN GARDEN.

WHERE Carrots and Radishes are grown in frames sowings of those crops may be deferred until the end of the month, otherwise sow when the weather permits. We sow on borders at the base of a south wall: the borders are from 18 inches to 2 feet wide, and have a depth of about 6 inches of rich light soil. French Forcing and Early Nantes Carrot, French Breakfast and Wood's Frame Radish, are the best for this sowing. The walls being covered with fruit trees the blossoms of which are protected, the Carrots and Radishes have the benefit of the protection. Make a sowing in a similar position of Lettuce Early Paris Market, All the Year Round, Bath Cos Sugarloaf, and Hicks' Hardy White; Cauliflower Early London, Walcheren, and Veitch's Autumn Giant, which last is very valuable in late summer and autumn;

Brussels Sprouts, and Leeks. For general purposes Musselburgh is unsurpassed. Those growing Leeks for exhibition purposes will sow in gentle heat. In warm localities a sowing of Turnips may be made upon a narrow border at the foot of a wall with an east aspect; Early Snowball and Veitch's Red Stone are suitable kinds. In cold localities defer sowing until the end of the month or early in March. Plant Shallots and Garlic, also Potato Onions, when the ground is in suitable order. Take the earliest opportunity to sow Parsnips, Hollow-crowned Improved and The Student. Onions of the Tripoli varieties transplant on highly manured ground for forming large bulbs, those left in the seed beds being thinned as they advance will come into use early. Draw a little soil to the autumn-sown Peas and place sticks to them, filling in the bottom with small twigs. Advantage should be taken of the first mild sunny weather to plant out early crops of Peas which have been sown in turves, &c., under glass, placing sticks to them at the same time.

Forcing Department.—Sow Dwarf Kidney Beans either in pots or in beds. We depend upon plants in pots for the early supply, sowing at intervals of a fortnight. We employ 10-inch pots, which are three parts filled with turfy loam, placing six to eight beans equidistant about an inch from the side of the pot, and press them into the soil to a depth of about $\frac{1}{4}$ inch. More soil is added when the leaves are above the rim of the pot. The plants are moderately watered until coming into flower, when the supplies are copious, and when pods form liquid manure is given. They require a light airy situation in a house with a temperature of 55° at night, 65° by day, increasing to 75° and more from sun heat. Osborn's Forcing is dwarf and very prolific; Williams' Prolific is somewhat taller, and both are excellent for pots. Tomatoes raised early in the year will now be strong plants and growing freely. They give the most satisfactory crops when planted out in narrow borders where the roots are somewhat restricted, and if the shoots are trained to a trellis about a foot from the glass they afford an early and good supply of fruit. The back wall of a Cucumber house is a good place for securing an early crop, especially if the house has a half-span roof. Falling borders the plants may be grown well in 10-inch pots.

EARLY FRUIT GARDEN.

The pruning of Peaches and Nectarines must now be proceeded with. Early pruning is not desirable, as it tends, when the trees are secured to the wall, to forward the blossom. No time should now be lost in pruning these trees when the weather permits. Cut-out the old worn-out branches if too crowded, especially those having a well-disposed young shoot at their base for supplanting the one cut away. The main branches should be 1 foot apart, and the shoots upon them for bearing 12 to 15 inches distant. Shoots not over 9 inches in length will not require shortening; those of a foot or more to be cut to 8 or 9 inches and to a triple bud, making sure that the central one is a wood bud. In all cases a wood bud should be left at the extremity of the shoots. Central leading shoots may be shortened to 15 inches, and the side extensions cut back one-third their length, always cutting back to firm well-ripened wood. Dress the trees after pruning as a preventive against insects: 1 lb. of soft soap to a gallon of water, adding tobacco powder to bring to the consistency of thin paint, is a suitable mixture, applying it with a brush, taking care not to dislocate the buds. Secure the branches to the wall by tying or nailing. Vines upon walls to be pruned. Rather close pruning should be practised, as the wood at the base of the shoots will be more firm, the extension shoots being cut back to firm ripe wood. Plantations of Strawberries mulched in autumn with partially decayed manure should have the dung pointed in lightly with a fork, not going so deep as to injure the roots, removing any decayed leaves from the plants, and weeds, especially those of a perennial kind. Strawberries grown on the lazy-bed system should have the old decayed leaves removed and be top-dressed with short manure, pointing it in slightly where space permits.

FLOWER GARDEN.

Complete the arrangement for the summer bedding, so that a sufficient quantity of the particular plants required may be propagated. In open weather the planting of hardy edging plants and such as are required for panels may be proceeded with, such as *Cerastium tomentosum*, Gold and Variegated Thyme, *Ajuga reptans rubra*, *Sedums glaucum*, *lividum*, &c.; and *Saxifragas hirta*, *hypnoides*, *Aizoon*, *cordifolia*, &c.; *Stachys lanata*, *Arabis alpina variegata aurea*, and *Antennaria tomentosa*; also *Violas* from autumn-struck cuttings, of which Blue Bell, Royal Blue, Crown Jewel, and Vestal are superb. They prefer rather strong moist soil, failing that manure very liberally. Many failures happen with *Violas* through late planting and neglecting to pinch the early-flowering growths. Seeds of *Violas* sow, and Golden Feather *Pyrethrum*, the Cut-leaved (*Pyrethrum aureum laciniatum*) being a capital form, in pans or boxes, to be placed in gentle heat until the seedlings appear, then remove them to cold frames, admitting air freely, as they suffer from a damp confined atmosphere. *Verbena venosa* is a much-neglected plant, though one of the most enduring of bedding plants. Old roots may now be divided and seeds be sown in gentle heat, and good plants will be provided by May. Herbaceous *Lobelias* are not sufficiently cultivated. They

may now be divided and started in gentle heat. They do best in vegetable soil, and must be kept moist. *Gladiolus* of the *Ramosus* section plant for early blooming. Plant the corms 4 to 6 inches deep, surrounding them with sharp sand. Plant *Liliums* 6 inches deep. They delight in peat beds, doing well among thinly planted *Rhododendrons*. They have a fine effect in borders backed by evergreens. If dry bulbs are planted they should be surrounded with sharp sand. *Dahlia* roots plunge in gentle heat, where they will soon form young shoots, which when a few inches long should be taken off and potted singly. *Cannas* may be started in the same way, dividing the roots when growth has taken place. They do not come very true from seed, hence the necessity of division to ensure the stock true to name. *Mignonette* and *Sweet Peas* may be sown in pots to be placed in gentle heat, and after the plants are well hardened off plant them out for early flowers. Seed may also be sown in a warm situation outdoors. *Calceolarias* closely placed in frames or if wintered in boxes should have more room. To have good plants they should have 4 to 6 inches of space every way. Sow in heat *Phlox Drummondii* and double dwarf *Scabious*, also a few German Ten-week Stock and *Asters* for early flowering. Pot off autumn-struck cuttings of *Pelargoniums* and other bedding plants which it is desirable to have strong by planting-out time. Tricolor and choice *Pelargoniums* should have an increase of temperature, say 50° at night, to promote the growth of cuttings, which may be cut about half way through beneath a joint and left on the plants for ten days to form a callus, and then be severed and inserted singly in small pots, placing them on shelves near the glass. *Roses* and other climbers against walls should be pruned, trained, and tied, and if an early bloom of *Roses* be wanted the standards or dwarfs of the perpetual class should be pruned at once, deferring the general pruning until a later period.

FRUIT HOUSES.

Pines.—Preparation should be made of the material for a fermenting bed to start early in next month suckers for the supply of fruit during the ensuing winter, spring, and early summer months; afford and maintain a temperature of 85° to 90° at a few inches from the surface. It is essential that the plants be as near the glass as possible. Soil for potting should be prepared, having it under cover to dry and become warmed. If the suckers be well matured at the base they do not require drying before potting, as the old-fashioned shrivelling process only serves to weaken them, but those not having the base matured should be detached for a few days before being inserted. If a few of the most forward plants were started late in the last or early in the present year they will now be showing fruit, and should be forwarded as expeditiously as possible, keeping the temperature at 70° , with an advance in mild weather of 5° to 10° , giving air as before advised. Examine them twice a-week, and water such as need it. Plants started early in the month must not be too rapidly pushed; 65° at night and 70° to 75° by day from fire is ample for the first month. The whole stock of plants should be gone over once a-week, as from the increased light their requirements of water will be increased.

Cherries.—Cherry houses are by no means so common as they deserve to be; indeed, only large establishments can boast of such structures. A lean-to house erected against a wall with a south aspect is suitable for Cherries, and it need not be more than 6 feet in width. The border should be thoroughly drained to carry off superfluous water. Road scrapings or grit of some kind must be added if the soil be too aluminous. Trees from the open wall between four and six years trained, if carefully removed to the house, come into bearing at once. Water them well to settle the soil about the roots, and ventilate very freely, syringing in the morning and again early in the afternoon, employing fire heat only to exclude frost; but when the trees are fairly in growth let the day temperature from fire heat be 50° to 55° , rising to 60° to 65° from sun, increasing the ventilation at 55° , and closing at that temperature, leaving, however, a little air on day and night; 45° to 40° at night from artificial heat will be sufficient. May Duke, Black Tartarian, and Elton are suitable for forcing.

PLANT HOUSES.

Stove.—The propagation of many plants may now be performed, among which may be mentioned *Gardenias*, *Rondeletias*, *Hibiscuses*, *Ixoras*, *Tabernæmontanas*, and others with firm wood. It is desirable to secure with the cuttings a heel—that is, a small portion of old wood, taking care not to bruise the bark. They must be inserted singly in small pots filled with sandy soil surfaced with silver sand, and be placed in a close frame with brisk bottom heat. *Hoya*, *Cyrtoceras*, and *Eschynanthus*, and similar plants strike readily from cuttings of the joints of the ripe growths; also *Eranthemums*, *Scutellarias*, *Centropogons*, and other free-growing plants, not omitting the very useful *Plumbago coccinea superba*. Cuttings of *Euphorbia jacquiniæflora* should be inserted for early flowering, selecting young shoots about 6 inches long taken off with a heel, also *Luculia gratissima*. *Begonia* cuttings of the stemmed kinds to be taken for flowering in late summer and autumn. *Allamandas*, *Bougainvilleas*, and other climbers may be increased by selecting young shoots 6 inches in length, and taken off with a heel and placing them singly in

small pots in sandy peat surfaced with sand. *Allamanda grandiflora* succeeds best when grafted upon stocks of *A. nerifolia*. *Epiphyllums* may now be grafted on *Pereeskia* stocks. Old plants which have ceased flowering should be repotted. Fibrous loam with a fourth of well-decayed manure and a sprinkling of sand with good drainage will answer; moderate pot room will suffice.

Orchids.—Potting and top-dressing as the plants afford signs of growth must be proceeded with. Drainage must be thorough, and the plants must be thoroughly cleansed of insects. White scale may be removed with a brush and a solution of soft soap, finishing-off with clear water. *Miltonias* do well in perforated pots or baskets, and as they require more heat and shade than the plants in the Mexican house generally, give them a place at the warmest end, suspending them from the roof. Good fibrous peat with a little sphagnum suits them. *Cattleyas* requiring fresh pots or blocks should be potted when they show new growths. In pots the plants must be slightly raised above the rim, and good drainage be given, using fibrous peat with lumps of charcoal for potting. They should be suspended from the roof, or kept near the glass where they can have plenty of light and a free circulation of air. This applies more particularly to such small growers as *C. Regnelli*, *C. Aclandiae*, &c. They require water about twice a-week, but should not be overdone. *Dendrobiums* starting into growth to have an increase of water, and be shifted into larger pots or baskets as the growth is fairly started. As the weather is brighter an increase of moisture will be necessary, sprinkling *Aerides* and *Vandas* lightly overhead, especially those recently repotted. Look after crickets and cockroaches, which are very fond of the young flowering growths, and destroy them by some beetle poison. Woodlice often destroy the young roots. Baits of a half potato raw with the centre scooped out may be placed on the surface of the pots and where the pests secrete themselves. Thrips must be kept down by fumigation with tobacco. Have shading in readiness, it need only be used to prevent scorching.

FLORISTS' FLOWERS.

Persian Ranunculus.—Beds which have been prepared during the autumn will be now ready for planting, and with us the ground seems to be in a better condition for the operation than it has been for the last two or three years. The 12th of February is generally looked upon as the orthodox time, but it has sometimes been March before we have been able to get the ground in order, and then only with very great trouble, owing to its being so very wet. Our own beds are 4 feet wide with boxed edgings, as this makes the planting (which is a matter of very great importance) more easy, for the *Ranunculus* ought to be planted about 1½ inch deep, long experience having shown that deeper than this the tubers are apt to reproduce small ones a short distance above the old one, and the growth is spoiled. We use a stout piece of oak about 4 inches wide with a notch 1½ inch cut in it at each end so as to fit the size of the bed. This is laid across and gently tapped with a mallet so as to make the drill the required depth, and then the tubers are gently pressed into the bottom of the drill. The *Ranunculus* likes a close bottom, and therefore the less the ground is worked in the spring the better. When the soil is at all heavy it is well to place in the bottom of the drill a little sharp sand, but our soil is light enough to dispense with this. A contemporary has mentioned some wonderful "French" varieties. As we have grown nearly all the kinds—Dutch, English, Scotch—we are surprised that we have never heard of this strain, and should be glad if any of the readers of the Journal could tell us anything about it.

Tulips.—The winter has been a propitious one, we should imagine, for this once favourite but now greatly neglected flower. The wet has not been excessive and the frosts slight, and it is these two combined which are so injurious to the Tulip. The wet readily lodges in the somewhat concave leaf, and then when frost supervenes it is apt to cause canker and decay. Where beds have been protected it will be time to take the protection off, and in fine weather the surface may be gently stirred, and if any signs of canker show themselves on the roots it should be cut away.

TRADE CATALOGUES RECEIVED.

H. Cannell, Swanley, Kent.—*Illustrated Floral Guide*.
Harrison & Sons, Leicester.—*List of Choice Seeds for the Garden and Farm*.

Charles Kilminster, Burgess Hill, Sussex.—*Descriptive Catalogue of Choice Flower and Vegetable Seeds*.

Laurence & Strike, 63, High Street, Stockton-on-Tees.—*Descriptive Catalogue of Flower, Vegetable, and Farm Seeds*.

J. T. Rote, Broomfield Nursery, Cecil Road, New Town, Enfield.—*Catalogue of New and Select Kitchen Garden, Agricultural, and Flower Seeds*.

Edmondson Bros., 10, Dame Street, Dublin.—*Spring Catalogue of Select Seeds, Roots, and Implements*.

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or

Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

BOOKS (Jean).—There is an essay on perspective in Chambers's "Educational Course," and Hayter's "Introduction to Perspective," both good.

AMATEUR (Letter Carrier).—As you reside with your parents and are not a labourer we think you should exhibit in the amateur classes.

SCYTHE (G. M.).—It is not an implement of modern invention. It is described in Roman books still extant, and specimens have been found buried in this country. This in one instance occurred at Chesterford. The scythes were longer and more curved than those we use.

CLERODENDRON BALFOURIANUM (W. M. G.).—We presume your fernery is heated and is kept at a moderate stove temperature. If so the *Clerodendron* will "luxuriate and afford shade" during the summer. In our stove fernery it not only affords shade but a supply of flowers, and is never attacked by insects.

SCRIM CANVAS (Cranfordian).—It can be obtained we think from any of the leading nurserymen and seedsmen.

APPLE TREES CANKERING (A Country Vicar).—A light soil on ferruginous subsoil is very liable to induce canker. The best preventive is to keep the roots near the surface, which is best effected by keeping it well mulched with stable manure.

GUM FOR FLOWERS (A Many-years Subscriber).—To check the fall of the petals drop into the centre of each flower a strong solution of gum arabic. Any druggist can supply you. Apply to the nearest florist for *Asters* suitable for pot culture. They are very numerous and mostly unnamed.

LIQUID GLUE (Solvent).—We have never tried it; but the receipt was supplied by a very competent authority to a scientific journal from which it was taken.

SOIL FOR FIGS (An Ignoramus).—If you have a very fertile rich loam you need wish for nothing better for your Figs in pots. If it is poor enrich it with about a third of decayed manure to two-thirds of the loam; a sprinkling of mortar rubbish and charcoal is also beneficial. Be careful to drain thoroughly and to ram the soil hard. The spray of the plant enclosed was too much withered for identification.

ROSES FOR A SMOKY NEIGHBOURHOOD (Maud).—The best advice we can offer you is to plant only robust-growing and free-flowering sorts, and of such we may name *Gloire de Dijon*, *Charles Lefebvre*, *Baronne de Rothschild*, *La France*, *Annie Wood*, *Beauty of Waltham*, *Victor Verdier*, *Comtesse d'Oxford*, *Centifolia rosea*, *Charles Lawson*, *Boule de Neige*, *Dr. Andry*, *John Hopper*, *Jules Margottin*, *La Ville de St. Denis*, *Madame Alfred de Rougemont*, *Louisa Wood*, *Marchal Vaillant*, *Marquise de Castellane*, *Maurice Bernardin*, *Monseigneur Noman*, *Monsieur Paul Neyron*, *Paul Verdier*, and *Pierre Notting*. Any of this choice two dozen answer well in pots, and for the open garden we would add *Mrs. Bosanquet*, *Provins Cabbage*, common *China*, common *Moss*, with white *Perpetual Moss*, *Salet*, and *Madame Moreau*. As you wish for early and late bloom we add half a dozen *Tea Roses*, to be trained to any wall or building:—*Cheshunt Hybrid*, *Homère*, *Narcisse*, *Madame Falcot*, *Souvenir d'un Ami*, and *Duchess of Edinburgh*.

PLUNGING MATERIAL IN A PROPAGATING FRAME (F. J.).—With a brisk heat we prefer keeping plunging material moist, for if dry it must absorb moisture from porous pots to a considerable extent, to the great risk of harm to the cuttings.

TIME REQUIRED TO FORCE RHUBARB (Idem).—Your Rhubarb will be fit for use in a month or six weeks from the time of starting. Much depends upon the quantity of fermenting material applied. Gauge the heat with a trial stick occasionally. If it is unpleasantly hot to the hand there will be risk of destroying the crowns, and some of the heap must be taken away. A gentle heat is in every way preferable, the growth being stronger and the roots are less exhausted.

LATE PEAR AND PLUM FOR A WEST WALL (G. W. Mune).—Winter Nellis Pear and Bayley's Green Gage Plum; or, if your prefer a red Plum, *Kirk's*.

TREES FOR A SCREEN (Idem).—If you require a fast-growing deciduous tree the Black Italian Poplar will suit you, and it may be pollarded as you propose. But as your screen is to be only 12 feet high, why not choose an evergreen, such as *Portugal Laurel* or *Holly*? Both of them may be cut and clipped to a formal hedge, or may be left uncut to form specimens of large size and elegant proportions. The mop-headed *Acacia*, *Robinia inermis* forms handsome miniature standards.

PROPAGATION OF MANETTI ROSE STOCKS (W. S.).—Cuttings are made in the autumn in lengths of a foot of the firm well-ripened growth of the current year, the bottom being cut across close below a bud, and the top cut slant an inch above a bud. The bed requires no shelter, and therefore the cuttings are inserted in any convenient border of fertile well-drained soil, being thrust in deeply, leaving only about 4 inches of the top above the surface. The rows are a foot apart, and the cuttings 6 inches apart in the rows. This process may be carried out successfully throughout the winter; but not a day should now be lost, as chances of success will decrease proportionately with the swelling of the buds. You may not be aware that strong plants of *Manetti* may now be had for 1s. 6d. a dozen and 8s. a hundred.

ASPECT FOR MARECHAL NIEL ROSE (Idem).—A south or south-western aspect is best, as the cold north-eastern blasts, which have been so prevalent in the last three or four springs, prove fatal to the large foliage, especially in its then tender condition, and are also hurtful to the blossom.

REPOTTING EUPHARIS AMAZONICA (G. B.).—Repot in rough rich soil consisting of turfy loam, old decayed manure, with a plentiful admixture of sand and powdered charcoal. Let the whole of the bulb be below the surface, employ large pots, plunge in a brisk bottom heat, water freely, and apply also frequent doses of liquid manure after the pots have become filled with roots. Thus much for pot culture. For obtaining a supply of cut flowers—and who does not covet such a supply?—discard the pots and plant out in the bed of a stove, letting the roots ramble at will, and you will have flowers in greater abundance and finer than in pots.

INSECTS ON BIGNONIA (A Devonian).—The spray sent is infested by both brown and white scale. Wash the foliage and stems with a strong solution of soft soap or Gishurst compound, dissolving 3 or 4 ozs. in a gallon of water and applying at a temperature of 120°. Occasionally *Camellias* will produce a white spray when the plants are in a healthy state, but the leaf sent suggests that the root-action of your plant is imperfect.

TIME REQUIRED TO BRING POTATOES TO MATURITY (*Country Vicar*).—Under good culture early Potatoes are fit for table in eight weeks from the time of planting; that is to say, if you plant in the second week of April they will be ready in the second week of June. If you plant earlier you gain nothing and have to wait so many more weeks from the time of planting. Second early sorts planted at the same time will be ready a fortnight later, say the first week in July, and late kinds will not be ready till the second week in August, or sixteen weeks from the planting—just double the time of the early sorts. Early and second early sorts continue good for about four months, and the best late sorts are in excellent condition for ten months. We have had Paterson's Victoria really good the year round.

IRISH YEW SEEDLINGS (*Idem*).—Irish Yews will of course come from seed, but, owing to its scarcity, they are usually raised from cuttings, which strike root so freely as to render this particular sort a favourite with propagators. You say your common Yews have innumerable seedlings springing up beneath them, and yet you have no seedlings from the Irish Yew. We have a huge old Yew tree under which fowls run, and not a seedling is there to be found. We have occasionally found a few seedlings of Irish Yews in our shrubberies, but the seeds do not appear to germinate in this natural manner nearly so freely as those of the common Yew.

TREES ON THE CHALK (*A Lady*).—Much depends upon the depth of soil overlying the chalk. We have seen fine Elm and Oak trees in deep soil upon chalk, which is perfectly innocuous to any of our hardy trees. As therefore your soil is unlikely to be of an uniform degree of thickness, you may find upon examination that you have suitable situations for other deciduous trees besides Beech, which with Yew, Silver Fir, and most of the Conifers answer well in a shallow soil. Avoid Wellingtonias, which require a very deep rich soil; the Silver Fir, on the contrary, grows 100 feet high in thin poor soil. Pinus insignis is another fast-growing Conifer with a dense clothing of long foliage of a pleasant lively green hue. Of other Conifers take Cedrus Deodara, C. atlantica, Picea Pinsapo, P. Nordmanniana, Cupressus macrocarpa, and C. Lawsoniana erecta viridis; and of deciduous trees Wild Cherry, Robinia hispida, R. Pseud-Acacia, the double-blossomed Cherry, the Tulip Tree, Oriental Planes, Sycamores, and Limes. The trees may be transplanted of a large size, but it is a costly process, likely to prove unsatisfactory without the exercise of much care subsequently. Shrubs may now be transplanted with perfect safety onwards for another month.

HERBACEOUS FLOWERS ON THE CHALK (*Idem*).—Enrich the soil thoroughly with manure or leaf soil, and you may plant your collection with confidence of success. If the situation is exposed to gales some shelter for tall-growing plants is desirable, otherwise aspect is immaterial, unless you intend trying experiments upon so-called tender plants, then a snug sheltered position upon to the south or south-west would be desirable.

NAMES OF FRUIT (*W. Potten*).—The small Apple is Birmingham Stone Pippin. The larger one is not known. (*J. A. B.*).—Rymer. (*Tillington*).—1, Hoary Morning; 2, Golden Pearmain; 3, Not known, probably local; 4, Wheeler's Russet; 7, Sheep's Nose.

NAMES OF PLANTS (*J. P.*).—*Oeanthus asureus*. (*W. W.*).—A good variety of *Tydena*.

THE HOME FARM: POULTRY, PIGEON, AND BEE CHRONICLE.

THE MANAGEMENT OF DOWN EWES AND LAMBS.

(Continued.)

We will take first into consideration the best plan to pursue having determined to fatten the ewes and lambs together; and in order that the ewes may be fat and fit for the butcher when the lambs are sold, it requires very liberal feeding as well as great nicety and care in the feeding. Irrespective of any other advantage in fattening the ewes at the same time as they are suckling their lambs, we will introduce a common observation that "fat ewes make fat lambs." Our long experience proves the truth of this observation, and have found that the high feeding of the ewes is justified by the fact of the lamb benefiting greatly through having a supply of the richest milk. In our last week's statement we brought the management of the lambs down to a period when they are to enter upon root-feeding in the open field. The ram lambs will now require to be cut, and we have found this much the better plan than that of drawing at a few days or a week old. We prefer to cut and sear the lambs at about a month old, because we find that when treated in this way they are fuller in the leg and more fleshy on the back. We do not find that more lambs suffer or die after the latter operation than the former; but in either case they should be allowed a clean-littered fold the night succeeding the operation.

Before commencing root-feeding, whether of turnips, swedes, carrots, or mangel, they should be pulled, cleaned, and heaped in readiness for the cutter a week or ten days in advance. We have sometimes known frost continue long enough to disarrange our plans unless the roots are previously prepared for use in advance of the sheep. In commencing feeding on roots we prefer to begin at the lowest part of the field where the land is undulating, for we find that the lambs draw through the lamb gate better,

and the ewes are fond of lying on the highest ground, so that on the shifting of the hurdles the land is more regularly manured than when folding down the incline. The making of the lamb gate, too, is somewhat important, in order that there may be no danger of the ewes passing through into the lamb fold in advance; and this is secured by the bar across, the ewes being so much deeper in the bogom than the lambs. The moveable bar when adjusted to the bosom of the lambs entirely excludes the ewes, the rollers being also adjustable as the lambs grow larger.

We will now refer to the food for the lambs and the time of feeding. Great and valuable changes have been made in this matter within the past few years, for instead of allowing the lambs to run into the roots in advance and eat off the greens, the plan is now to feed the lambs entirely on trough food, and this can be easily done when the roots are heaped beforehand. It is also extremely important that the best and finest hay should be used cut into chaff. For this purpose grow white Dutch and yellow suckling clovers mixed, and when grown without rye grass and properly secured we have had this sort of hay as fine and handsome as a sample of hops, and to this there is no waste, for if any is left in the troughs it is removed to the ewes' fold. To make a lamb in perfection we require white Belgian carrots. We cut them into pieces about 2 inches long, and then pass them through Gardener's turnip cutter twice; they are then reduced in size and shape like dice. The best American cake meal is then strewn over, which readily attaches to the cut carrots, the aroma from which is very pleasant and grateful, and induces the lambs to eat at the earliest possible period. At the same time, instead of eating carrots only they are obliged to eat the cake also. After the lambs attain to about six weeks old we use bean meal as well as cake meal, in order that as they advance towards maturity they should be full of flesh as well as fat, and handle firm. This root-feeding may be done in open troughs, but in the covered troughs we feed with maple peas cracked, mixed with cake broken fine, and in pieces about the size of the cracked peas. After the lambs grow older we use cracked beans instead of peas, always taking care to place the covered troughs with the back to the wind; the young lambs, going there oft-times for shelter, are induced to begin feeding sooner than they otherwise would do. The lambs should be first fed when the shepherd arrives at the fold; they are thereby induced to draw away from the ewes, as it is not desirable for them to feed together. The rotation of feeding is hay-chaff three times a-day and roots twice; but the covered troughs should never be vacant, yet they should be cleaned-out once a-day. It has been observed by some of the best shepherds that to make good lambs they should never see an empty trough; and in removing the remains of lambs' food, whether of roots, hay-chaff, or beans, it is without waste, being given to the ewes. By this mode of feeding the lambs attain the earliest maturity, and as they are whilst young very small eaters the object is to induce them to take into the system food containing the greatest amount of nutrition.

Within the smallest space on this mode of management the general health of the lambs will be good; the changes of the weather make little or no difference to them, the condition of the food being always the same when frost, or snow, or rain prevails, but this cannot be said of lambs when they are allowed to run forward into turnip greens. We make no difference in feeding the twin lambs, simply because we cannot devise a higher or better system of feeding. We have, however, sometimes fed their mothers with a greater allowance of cake, but their lambs run forward with the others, although the ewes, if we have many with twins, have a separate fold. Upon this system of feeding we find that the lambs will be fit for the butcher at eleven or twelve weeks old, but may sometimes be kept longer with advantage, for being made heavier they make a proportionate higher price. When the stock of carrots fails, or by loss of the crop, we find the next best food is cabbage with firm white hearts. These, when quartered into the cutter and passed twice through, will be found very good feeding, and with the meal attached the lambs will eat

it very readily, as the leaves when cut are thin, and young lambs in particular will take them before any roots in larger pieces. Mangel we discard altogether as food for lambs, not because they do not possess feeding value, the Yellow Tankard variety being especially nutritious; but we find that the wether lambs after they get fat often suffer from stoppage of urine, for which there is no cure, as it cannot be seen until the system is so affected that they cannot be relieved. This has proved to arise from the deposit of sugar in lumps in the urinary passages. If they are killed they are of no use as human food, the whole of the flesh becoming impregnated with the urine.

We will now explain our method of feeding the ewes, so that they may be fat and fit for sale when the lambs are ready for market. As before stated, the roots—whether of turnips, swedes, mangel, or carrots—will be prepared ready for cutting with Gardener's cutter beforehand, the ewes being fed in troughs. When the roots are large they should be quartered into the cutter; there will then be no pieces after passing through the cutter, and this is a matter of consequence when cake and bean meal is mixed with the roots. When there are long pieces they take them into their mouths, and because they cannot eat them readily drop them outside the troughs, which wastes the food. The ewes should have half a pound of cake meal a-day mixed with the cut roots until the lambs are about five weeks old, and then until they are sold half a pound of bean meal should be added and mixed with the roots; this will not only make the milk richer for the lambs but will tend to make the ewes handle firm as well as fat, that being the state in which they will be most approved by the butcher. The course of feeding for the day will be hay in chaff first thing in the morning (after the lambs are fed), then roots and meal, the hay chaff being given twice a-day, the roots three times a-day. This plan involves trough-feeding entirely, and when roots are given it should be in such moderate quantity that it may be consumed entirely before the ewes leave the troughs. Between each time of feeding the troughs should be turned upside down to keep them dry, which is of consequence in meal-feeding. The old plan of giving cake and corn mixed with chaff is gone out of use by all the most intelligent farmers, because the ewes in seeking after the cake and beans used to rout the chaff out of the troughs and waste it. This is of more consequence than ever, seeing that the hay grown for ewe-feeding is composed of broad clover and yellow suckling without any rye grass as formerly; every particle of the hay ought therefore to be consumed, and so it will if given in moderation and between the intervals of root-feeding. By this method of feeding all the cake or corn given is in meal mixed with roots, and without waste, at the same time every sheep gets its share of the superior food as well as roots. It is also very much better for the health of the animals that in eating the roots the meal should enter the stomach at the same time, and this effectually prevents the scour or dysentery, to which sheep are particularly liable when they eat roots alone. Mangels are not generally used until the spring of the year—about March or April, but we have used them with great success, beginning with them in October and continuing through the whole winter upon the plan of mixing meal with cut roots; but this does not suit the lambs as above stated. To obviate this difficulty we always feed the lambs first; they then draw away from the ewes. In fact if they did not they could not get much in feeding with the ewes, because they eat all they are allowed before they quit the troughs. We have had some of the finest stock for exhibition and sale that we have ever seen by this plan of feeding with mangel. We have, however, had excellent stock on some occasions where our whole root crop has been carrots, and given with meal in the same manner. Under ordinary circumstances and the generality of seasons the ewes and lambs will be all sold and gone by the 1st of May; indeed, we have sometimes sold them all a little before that date. To enable us to do that all the lambs came in good time, and not later than the first week in February. We always prefer to sell the ewes which have suckled a lamb in their wool, as they do not usually show to the best advantage when shorn.

WORK ON THE HOME FARM.

Horse Labour.—One of the greatest improvements open to persons engaged in agriculture is the great saving which may be effected by employing fewer horses, for when powerful animals are kept and well fed attached to the most improved implements of light draught it is possible by rigid economy to reduce the cost of our horse labour to a very considerable extent. The generality of soils are now fast becoming ready for tillage, and the demands upon the horse labour of the farm are so pressing and so varied that it is difficult sometimes to decide which work shall be done first. Nevertheless, beans and peas and the culture for them seem first to demand the horse labour; next the planting of early potatoes; and where the land has been, as it always ought to be, autumn tilled, it is only a single horse plough that is requisite to forward the work. Rolling of grass land may be done in the event of the arable land being too moist for tillage; in fact, the clovers and all grasses intended for hay may now be rolled, and this work often requires more care than is usually taken. The

"Cambridge" ring roller is the best implement we think either for pasture or arable land, and when the latter is a stony soil it will require more than usual care at the time of rolling. Two horses abreast are to be preferred to two horses at length, because the roller is surer to cover the space traversed by the horses. We recommend that there should always be an odd horse upon the farm, and if the farm is extensive two may be employed with advantage, for it is not economy to break the pairs of horses in the usual tillage work to do the odd or casual jobs. The odd horse will be required at times to drive the fixed power for grinding corn, cutting chaff and roots for the cattle and dairy cows, also carting hay to the sheepfold, straw and sand for littering the pigsties, &c.; and where a milking dairy is kept a light active horse should be obtained and used for taking milk to the station for London or to a neighbouring town. A light active kind of horse for such purposes will be found exceedingly useful, and also for horse-hoeing roots, beans, peas, and all kinds of corn requiring it by using the implement with three adjustable hoes.

Hand Labour.—The men will now be employed in the field, assisting in sowing, drilling beans, peas, and planting potatoes. At other times they may be employed in any hedging, ditching, and banking work which may have been left in arrear. We have seen on some well-managed farms between the arable fields where no horned cattle are turned out, and where the hedges are not quickest, but composed of the general growth of woods, such as hazel, ash, maple, brambles, &c., that all the stubs have been cut close to the bank, so that all the grass which grows on the bank and borders may be cut for cattle. This was our own practice for many years, until we grubbed up all the internal banks and hedges. The produce being cut twice a-year, beginning the first week in May, affords capital food for dairy cows and young stock, and consisting of coarse grasses, cow parsley, hog weed, with other rough weeds, brambles, and young shoots of wood included, which being cut young afford food for cattle and pigs, breeding sows especially. If all is not eaten the remainder is trodden down for manure, and this is preferable to allowing it to grow and seed the land with weeds if it stood until after harvest. We know a dairy of twenty cows fed with the bank and border trimmings last year during the whole summer; each cow had 4 lbs. of cake per day, gave abundance of milk and paid uncommonly well, all the milk being sent to London, and the animals being kept in the house they made large quantities of manure. The women will still be employed in trimming and stacking roots before the sheep. At other times they will be stone-picking on the pastures and clover seeds. They will also be required in cutting potatoes in readiness for planting, and they will take part in the planting, for at this work they will do better than men, being more nimble and quicker in work. Where beans are planted after the dibble or dropped in the furrow they will take part in this kind of work with advantage.

THE PRESENT ASPECT OF POULTRY SHOWING.

No. 2.

WE endeavoured last week to point out what we consider unsound in the present system of poultry showing. The remedies for these evils are somewhat obvious. We will endeavour to give our ideas upon them as plainly and practically as possible:—

1. As to the multitude of shows and those often nearly at one date. Common sense would dictate without any suggestion of ours that there should be some previous consultation of secretaries, but somehow this does not seem to take place, to judge by the list of meetings from last August to October. The want seems to be some central medium of communication. We wish the Poultry Club now in process of formation would undertake the office and keep a register, to which secretaries might send word of the proposed days for their shows at the beginning of the year, and learn thence before the dates were absolutely fixed what other shows would be likely to interfere with their success. We hope the experience of last autumn will have done something towards making this unnecessary, and that some of those exhibitions which were heralded with so much parade and turned out perfect *fascos* will not be heard of in 1878. Not only, too, should shows not absolutely clash, but they should as far as possible be spread over the showing season, which we consider broadly from September 1st to February 1st. Many of the later shows—e.g., Manchester, Bristol, and Portsmouth, have fallen through, and we should, therefore, *a priori*, have expected that their times would have been taken by others, but not so. In spite of last season being a notoriously late one, at the shortest notice several committees, not content with their shows clashing, got them up at a very early period. Half-matured chickens figure at such, but seldom win again. Many of the greatest breeders do not rear early chickens, some from disliking the trouble of them in the cold months, others from knowing that they are seldom in the end the best specimens; others, as in our own case, live in a climate or position in which it is absolutely impossible to force chickens to early maturity, and consequently never have young birds in their full beauty and strength till the new year, when the present chicken shows are nearly or quite over. We would commend the catalogues of the Dorchester and Yeovil shows held last month

to the notice of those in doubt about a good time of year for theirs, where for modest prizes we find classes with twenty to thirty entries; while last autumn silver cups or pieces of plate were thrown away. It is true that Dorchester had before been known as a well-managed show; but Yeovil was a first attempt, and exhibitors could not have been certain that it would be, as we hear it was, admirably carried out. We certainly want one or two first-class shows late. It will be said, "The breeding season is too near at hand;" but all young birds are not required for early breeding, besides when fully matured they bear a show far better than at six or seven months old.

The financial question is a very serious one. The cases in which committees have tried absolutely to repudiate their liabilities are fortunately few; still there have been many cases in which prize money has been only forthcoming after much delay and pressure, and others in which exhibitors have received the embarrassing appeals to which we alluded last week. If the public, or fanciers in sufficient numbers to make it pay, will not come to a show, why should one be provided for them? "Oh," it will be said, "they are for the local fanciers;" but surely in these days local fanciers can see first-rate shows without travelling very far; if not they must pay for their amusement with substantial guarantee funds, and this in many places they do most handsomely.

What we would suggest is the holding of more local shows, or at least shows with many prizes for local exhibitors and fewer open shows. We are convinced from long observation that genuine fanciers are more encouraged by them, and the improvement of poultry more promoted by them than in any other way. Year by year at our own county show we are asked advice by several young fanciers who have won a prize or prizes with birds which, to say the least, would not be noticed at a large open show. These beginners are delighted at their success, buy something better, and in a year or two win in the best company. We could name a dozen who have thus started. Near Oxford, again, we have observed the immense growth of the fancy since the establishment of the Show there in 1872, and we believe this is greatly due to the local prizes in each class. Those who are thus interested in their poultry—viz., farmers, are the very people whom we should wish, if we are patriotic, to interest in it. The evil of "paying classes" has already been to a certain extent remedied by the public spirit of individuals and clubs who have at many shows guaranteed prize money. We thank them for it, and hope others will follow their good example. If, however, shows were better attended and managed by fanciers, not speculators, this would not be necessary, for the large classes would pay for the smaller. Again, where there is doubt about a good company coming, tack the show on to something else, or at least have it on the same day and near. It is true that the time of summer flower shows does not suit poultry well, but that of fruit and autumn flowers does so admirably, so does that of Christmas agricultural shows. Probably every visitor to the one goes to the other, and both are improved.

2. As to overshadowing, arising from the multiplication of shows, if the shows were reduced the evil would in a measure cure itself. We fear there is little chance of the class of exhibitors who buy birds for show just as a speculation giving up their cruel amusement for any words of ours. There are many others, however, generally beginners, who, with the best intentions, through what we have called an excess of enthusiasm for the fancy, and in perfect ignorance that they are hurting their birds, do overshadow them. To these we would say a word. Shows are an unnatural and exciting atmosphere for birds, and, unless great judgment is used, must after a time impair their constitution. Young fanciers see the name of some great breeder again and again at all the great shows, and do not reflect that his or her birds are probably legion, and that different representatives appear at different places. We have exhibited much ourselves, but as a rule make six shows in the year the very utmost to which we send any one bird of the larger kind; some of the smaller birds will with impunity bear more. No hard-and-fast line can be drawn, for the length of shows is so various; a summer show of six or eight hours under canvas does no harm to birds. It makes much difference, too, if an attendant be sent with them to bring them in just before the judge goes round, and take them straight away at the close of the show instead of their being tossed about on railways for twenty-four hours or more. With this moderate amount of exhibition birds will live and breed for many years. We lost last autumn a Dorking hen, which is not generally considered a long-lived breed, to a day eight years and a half old. She had won thirty-three cups or prizes, and laid fertile eggs within a few weeks of her death; but though shown in 1869 and 1877, and many times in all the intervening years, she had never been overshadowed, and never at all till fully matured. We simply mention this fact to show what care will do.—C.

VARIETIES.

MR. ODAM in an excellent pamphlet on the cattle traffic and cattle diseases, concludes that "it will be useless to attempt stamping out contagious cattle diseases so long as those diseases

are admitted from abroad; and that when foreign animals are totally prohibited the farmers will be ready and willing to submit to any necessary restrictions and regulations under the direction of the central authority, but that until then any material interference with home traffic would be premature and useless. The matter rests with the public. Producers have much at stake, and their interests are happily identical with those of the public, whilst the dividers are against both. Consumers will have to decide on the course of action to be taken, and they may depend that the first step towards obtaining cheaper meat must be in the direction of shutting out and keeping out foreign contagious diseases of animals." It is on these principles that the Government Bill on this important question that was introduced into the House of Lords on Tuesday evening last is founded.

A RECENT paper by a German scientist contains the following, relative to a proper selection of eggs for setting. To get good strong birds, eggs from a two-year-old hen by a one-year-old male bird should be chosen, as these yield far larger chickens than eggs from a very young hen by an older male. The eggs should be regular in shape, and the largest should be chosen, except, of course, when a double yolk is suspected. In dwarf breeds, where the object is to get as small birds as possible, the smaller the eggs the better. The notion that pointed eggs always yield male birds is incorrect; this is only the case when they are from a hen that usually lays round eggs, while similarly round eggs from a hen that usually lays pointed ones generally yield female birds. Where, however, a hen always lays eggs of one shape, whether pointed or round, the young birds will be of both sexes.

It is in contemplation to hold an exhibition of poultry and pigeons in the Drill Hall, Hemel Hempstead, on Thursday and Friday, September 26th and 27th, the latter day being the date of the annual show held in the Corn Exchange by the Floral Horticultural and Cottage Garden Society. Mr. O. E. Cresswell and Mr. Leno are announced as judges, and Mr. Stallon is the Hon. Secretary.

REFERRING to the properties of cotton cake for feeding, Dr. Voelcker has stated that undecorticated cotton cake should not be given to calves, and decorticated cotton cake required to be given to animals judiciously. He had had brought under his notice more than one hundred cases in which cotton cake was alleged to have poisoned sheep and cattle. He found, however, that the alleged injury was due to the injudicious way in which cotton cake was given to stock. A food so rich in albuminous compounds as decorticated cotton cake required to be broken up very fine, or better still, to be ground into meal, which should be mixed with twice its weight of Indian corn, rice meal, or other meals comparatively speaking poor in nitrogenous or albuminous compounds, and rich in non-nitrogenous or starchy constituents.

THE *Zeitung* communicates a plan of testing milk, which possesses the merit at least of simplicity. A well-polished knitting needle is dipped into a deep vessel of milk and immediately withdrawn in an upright position, when, if the sample be pure, some of the fluid will be found to adhere to it, while such is not the case if water has been added to the milk, even in the smallest proportions.

THE plan of breeding the stock kept upon the farm rather than going into the open market for fresh faces, has, says the *Agricultural Gazette*, so many advantages that we wonder it is not more generally practised. There certainly are men who are peculiarly suited for the delicate and difficult task of buying stock. With expert eye they pick out the lots most suitable for their requirements, and by skilful manipulation, if we may so speak, they succeed in buying them cheap. Such men delight in marketing, and, as everyone has a strong point as well as a weak one, it may be the wisest course for them to continue to buy and sell and get gain. With others marketing is about the most distasteful part of their business. They delight more in the work of superintending the cultivation of their crops and the rearing of stock, while market banter and market cheek they would gladly dispense with. Breeding their own stock cannot fail to be attractive to such persons. We think there are three good reasons for persevering in breeding rather than in buying stock: First, the pleasurable occupation of improving a home stock; secondly, freedom from disease; and thirdly, as we believe, a larger profit during a course of years.

A GERMAN farmer and student, who kept cows on a great variety of dietaries, found that most milk was produced by a mixture of 5½ lbs. of rape cake, 25 lbs. of oat-straw, and 36 lbs. of mangels. He found that 1 lb. of rape cake produced 1½ lb. of milk. From his experiments it would appear that it is not possible to produce milk specially rich in butter or in cheese, or, in fact, in any one ingredient; but it is certain that abundance of good food, especially if rich in fats, produces milk rich in all its constituents.

THE experiments of Voelcker show that farmyard manure does not lose very much by exposure to air, and light. The deterioration which ill-managed manure heaps undergo is principally due to losses by drainage. The dark-coloured liquid which is often seen flowing away from badly-kept dung heaps is rich in

nitrogen, phosphoric acid, and potash. It has been found through careful experiment that 100 loads of dung kept in the usual wasteful manner were reduced at the end of 81 days to 73.3 loads, at the end of 285 days to 64.4 loads, 884 days to 62.5 loads, while at the end of 499 days the original 100 loads were reduced to 47.2 loads, sustaining a loss of 52.8 loads. Thus in sixteen months more than one-half, and that the most valuable portion, of the manure had disappeared, leaving a highly carbonaceous matter poor in all the elements of fertility.

— ANSWERING the question of which kind of fowls to keep, the *Prairie Farmer* says:—If you want eggs through the greater portion of the year, but do not care for poultry for the table, keep the Leghorns. If you want eggs through the winter at the time when hardly any other varieties are laying, keep the Light Brahmas or White Cochins; in fact, to those who want a beautiful breed of fowls for fancy stock we unhesitatingly recommend the White Cochin. We know of but few varieties that show as well on the lawn or in the poultry-yard as this breed, and as good winter layers they are very favourably known. They are very quiet stay-at-home birds, and quite a low fence will keep them. The young Cochins, say at from eight to ten weeks old, makes a capital broiler, being round and full-breasted; but for roasters, however, the Cochins is of little value until it has matured, and even then it cannot compare with the Brahma and some other breeds. As mothers for early chickens White Cochins are unexcelled; they are large, and being covered with a heavy coat of long fluffy feathers they can cover quite a numerous brood.

WINTERING BEES.

I HAVE often recommended bee-keepers to keep their hives well covered during the winter and spring months, for I invariably find that hives warmly covered keep their bees better in winter and do better in spring than those not so well covered. The longer I live and the more experience I gain the more disposed am I to emphasise that statement, the "RENFREWSHIRE BEE-KEEPER'S" expressed contrary opinion notwithstanding. He says, "If cold is so prejudicial to bees, how comes it that power is given them to resist the intense frosts of the fearful winters of Russia and North America with impunity?" Is not this a mere assumption? Do bees bear those winters with impunity? If they do where shall we find the evidence? I have read American books on bees, which tell us that the preservation of bees in winter is a great difficulty in America. Large bee-keepers there build houses with thick walls and without windows in which to winter their bees. I advise our Renfrewshire friend to read "The Mysteries of Bee-keeping," by Moses Quinby, a work of great merit by a writer of very great experience. In one of these thick-walled houses Mr. Quinby wintered his hives, and he kept hundreds of them. The "RENFREWSHIRE BEE-KEEPER" says that "eighteen years ago on the memorable morning of the 24th of December, 1860, the mercury in the tube of a thermometer inside a hive shrank to 7°, or 25° below the freezing point, and yet that hive survived and came through in fine order." I well remember that night and that frost, which kept me at my hothouse fires all night and killed to the ground all laurels, aucubas of the neighbourhood, and many hollies and other kinds of plants. Moreover, that frost killed more than three-fourths of the bees and hives in the north of England. That frost doomed thousands of hives to extinction. The country was nearly swept clean out of living bees by the cold of that night. Our friend was very fortunate in having his hive preserved alive, and this he ascribes "to the thorough ventilation afforded by slides of Indian matting running in its bar groves at the top."

One more quotation from the letter of the "RENFREWSHIRE BEE-KEEPER" and then I shall finish. He says, "Having served my apprenticeship to bee-keeping amongst the colonies which were long located in our house roof here, it was long a puzzle why such vagabond swarms preferred settling with us as well as in neighbours' roofs at the very coldest or north aspect, till at last the truth forced itself upon me that it was there they enjoyed the most thorough and undisturbed dormancy with the consequent minimum consumption of honey." It appears to me that what our friend calls a "truth" is nothing more than a mere fancy. That the swarms he mentions went to the north ends of the houses he saw I doubt not. Twenty instances of swarms going to the north ends of houses would not prove that bees prefer cold to warm situations. Cavities with old combs in them either at the north and south sides of roofs of houses will attract swarms; and hives with combs but without bees standing under a burning sun are as attractive to swarms as those standing in shady places. The idea of bees seeking a cold corner and quiet dormancy with consequent minimum consumption of food is, to say the least, a very novel one.

The idea of dormancy is not new, neither is the fact that bees eat less in cold winters than they do in mild winters; but I think the question of best climate for bees in winter is still unsettled. The death rate of human beings is generally greatest in cold weather, and in my experience the death rate of bees is very much greater in cold than in mild winters. I have noticed that after

mild winters, during which the hum of comfort has been heard in hives, the bees were healthy and numerous in spring. If bees venture out of their hives when the mercury is below 60° many are chilled to death, and if they fall into snow they become motionless and collapse immediately. I hold that a warm corner out of doors is better than a cold one for bees in winter for many reasons, and that hives cannot be too well protected from cold and storms.—A. PETTIGREW.

OUR LETTER BOX.

BRAHMA COCKEREL (J. A. B.).—Your question is a vexed one, but we will give our own experience. The cock hatched in May, now nine months old, should be tolerably developed. In point of growth he should have attained his maximum. He, however, requires to furnish and to put on weight. Two things are to be avoided. The first is to cause him to lead a solitary life, the other to give him too much society. We advise you to give him two female companions and to feed well. From your description he will never be a very large bird; but size is not the only merit of a Brahma.

EGGS IMPORTED (An Irish Subscriber).—We cannot tell the number, but the value of those imported from France in the first half of last year was £1,434,885. The price varies too much to state an average. A poultry company has been tried and failed; epidemic disease could not be kept away. For profit we should keep Dorking hens and a Brahma cock. The other queries cannot be answered. The experiment would not be costly to try.

BAR-FRAME HIVE (Cabinet Maker).—You will find drawings in our Manual "Bee-keeping."

METEOROLOGICAL OBSERVATIONS.

CAMPDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1878. Feb.	Baromet. ter at 33° and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of Sun at 1 foot.	Shade Tem- perature.		Radiation Temperature.				
		Dry.	Wet.			Max.	Min.	In sun.	On grass			
We. 6	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.		
Th. 7	30.578	35.0	33.9	S.E.	38.5	37.3	34.3	40.1	34.0	—		
Fri. 8	30.614	33.8	32.7	N.W.	37.3	41.6	30.8	64.0	23.5	—		
Sat. 9	30.635	36.5	36.5	N.W.	37.1	38.0	25.7	48.2	25.3	—		
Sun.10	29.362	32.9	32.9	S.	36.9	34.7	26.6	38.3	28.4	0.064		
Mo. 11	29.991	37.1	36.6	S.	36.8	42.4	32.8	42.3	32.2	0.068		
Tu. 12	29.986	37.7	37.0	N.E.	37.3	44.3	36.1	49.2	35.0	—		
Tu. 13	30.212	37.3	37.0	E.	38.3	44.3	35.0	76.0	28.3	0.294		
Means	30.331	34.3	33.8		37.6	40.4	31.6	50.9	29.6	0.423		

REMARKS.

6th.—Dark dull morning; finer afternoon; dry but dull night.
7th.—Fine sunny morning; rather foggy in afternoon. Moon and Venus very bright about 6 P.M.; slight fog in evening.
8th.—Thick white frost in early morning and fog; little sunshine in middle of day; very foggy in afternoon.
9th.—Slight rain in morning; dull cloudy day, but a little brighter in afternoon.
10th.—Thick very damp fog all day, and at times quite dark; fog cleared at 9 P.M.; slight rain.
11th.—Cloudy but dry day, without fog from night.
12th.—Bright sunny day; lunar halo 6.10 P.M.; fine evening, but heavy rain after 9 P.M.
A cold week, with high barometer, very little wind or rain, but a great deal of damp fog.—G. J. SYMONS.

COVENT GARDEN MARKET.—FEBRUARY 13.

GOOD late Grapes are now beginning to fall off very much, most samples showing signs of a finish. The first Strawberries this season were on show last week, but though poor fetched a fancy price. Forced and outdoor vegetables are in good supply, prices ruling below the average.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples.....	½ sieve	2	6to6	0	0	Melons.....	each	0	0to0	0	0
Apricots.....	dozen	0	0	0	0	Nectarines.....	dozen	0	0	0	0
Chestnuts.....	bushel	10	0	30	0	Oranges.....	½ 100	3	0	10	0
Currents.....	½ sieve	0	0	0	0	Peaches.....	dozen	0	0	0	0
Black.....	½ sieve	0	0	0	0	Pears, kitchen.	dozen	1	0	3	0
Figs.....	dozen	0	0	0	0	dessert.....	dozen	3	0	12	0
Filberts.....	½ lb.	0	6	0	9	Pine Apples.....	½ lb.	1	6	5	0
Cobs.....	½ lb.	0	6	0	9	Plums.....	½ sieve	0	0	0	0
Gooseberries.....	½ bushel	0	0	0	0	Raspberries.....	½ lb.	0	0	0	0
Grapes, hothouse	½ lb.	1	6	0	8	Walnuts.....	bushel	5	0	8	0
Lemons.....	½ 100	6	0	10	0	ditto.....	½ 100	0	0	0	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Artichokes.....	dozen	2	0	to 4 0	Mushrooms.....	pottle	1	6	to 2 0		
Beans, Kidney forced	½	100	1	0	Mustard & Cress	punnet	0	2	0 4		
Beet, Red.....	dozen	1	6	3 0	Onions.....	bushel	2	6	3 6		
Broccoli.....	bundle	0	9	1 6	Pickling.....	quart	0	4	0 0		
Brussels Sprouts	½	sieve	2	6	0 0	Parsley..... doz.	bunches	2	0	0 0	
Cabbage.....	dozen	1	0	3 0	Parsnips.....	dozen	0	0	0 0		
Carrots.....	bunch	0	4	0 6	Potatoes, frame	½	lb.	0	6	2 0	
Capiscums.....	½	100	1	6	2 0	Potatoes.....	bushel	3	6	7 0	
Cauliflowers....	dozen	2	0	4 0	Kidney.....	bushel	5	0	7 0		
Celery.....	bundle	1	6	2 0	Radishes... doz.	bunches	1	0	1 6		
Coleworts... doz.	bunches	2	0	4 0	Rhubarb.....	bundle	0	6	1 0		
Cucumbers.....	each	1	0	2 0	Salsify.....	bundle	0	9	0 0		
Endive.....	dozen	1	0	2 0	Scorzonera...	bundle	1	0	0 0		
Fennel.....	bunch	0	3	0 0	Seakale.....	basket	0	9	2 0		
Garlic.....	½	lb.	0	6	0 0	Shallots.....	½	lb.	0	3	0 6
Herbs.....	bunch	0	2	0 0	Spinach.....	bushel	2	6	4 0		
Lettuce.....	dozen	1	0	2 0	Turnips.....	bunch	0	3	0 4		
Leeks.....	bunch	0	2	0 4	Yeg. Marrows..	each	0	0	6 0		

WEEKLY CALENDAR.

Day of Month	Day of Week	FEBRUARY 21—27, 1878.	Average Temperature near London.			Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h.	m.	h.	m.	h.	m.	h.	m.			
21	TH	Royal Society at 8.30 P.M.	46.8	32.3	38.6	7	2	5	23	11	42	8	8	19	13	50
22	F	Queckett (Microscopical) Club at 8 P.M.	46.6	32.2	39.3	7	0	5	25	morn.	8	27	20	13	42	53
23	S	Royal Botanic Society at 3.45 P.M.	47.3	31.8	39.5	6	58	5	27	1	9	8	52	21	13	34
24	SUN	SEXAGESIMA. ST. MATTHIAS.	46.8	32.7	39.8	6	56	5	29	2	29	9	28	(	13	25
25	M	London Institution at 5 P.M.	47.4	32.7	40.1	6	54	5	31	3	39	10	15	23	13	16
26	TU	Royal Medical and Chirurgical Society at 8 P.M.	47.3	33.4	40.3	6	51	5	30	4	32	11	15	24	13	6
27	W	Society of Arts at 8 P.M.	48.0	33.6	40.8	6	49	5	34	5	11	0	25	25	12	55

From observations taken near London during forty-three years, the average day temperature of the week is 52.8°; and its night temperature 32.6°.

KITCHEN GARDEN CROPPING.



HE season has again arrived for the arrangements to be made, if not already done, for cropping the kitchen garden, and I would advise that all be arranged on paper, that nothing be left to memory or chance.

Crops which remain on the ground a similar time should be placed as much as possible together, rather than putting all Broccoli or all Potatoes together, whatever their season of becoming fit for use. Large quarters can be worked more economically than small plots, and small strips becoming bare between standing crops betray a want of system and forethought. Broccoli which turns-in in December and January should not be mixed up with such sorts as are only fit for use in April and May; the former will be off in time for early Peas, to be again followed by an autumn crop of Cauliflowers, Broccoli, or salading, while the latter may be succeeded by Celery or late Peas. Early Potatoes, such as Ashleaf or Myatt's Prolific, will be off in June and July in time for Carrots, Turnips, Borecole, and a host of other crops, including Winter Spinach; while late Potatoes will only be off in time for Cabbages. We ought always to have two or three successive crops in mind when making arrangements for planting one.

More than half the kitchen garden is capable of being cropped twice in a year, and there are some winter crops which never seem to be too abundant; while there is invariably a large breadth of ground in most gardens bare in late autumn and winter which, if proper forethought had been used in spring when arranging for the first crop, might have easily borne a second, and in some cases a third.

A garden often has peculiarities which seem to point out certain crops for certain places. Every natural advantage should of course be turned to account. If one part is light, dry, and warm, we should not by preference plant Celery in that particular spot, nor Potatoes where it is comparatively wet and heavy. Then, again, Celery takes a large quantity of manure, necessitating much wheeling; therefore we try to make the distance as short as possible. Onions like a heavy soil, but they also like sufficient heat to ripen them not later than the end of August. Peas, Cauliflowers, and Lettuces can scarcely have the ground too rich in manure; but Broccoli if grown too luxuriantly will not endure the frost. Savoy and early winter Broccoli, such as Snow's or Veitch's Protecting, may very well be neighbours, as they would occupy the ground about the same time; the same may be said of late Broccoli, Winter Spinach, and Borecole. I have these three together now, and they will be followed by Celery, with Lettuces, Turnips, or Cauliflowers between the trenches. Brussels Sprouts were planted between Potatoes thus: The rows of Potatoes were a yard apart, were earthed-up before they had scarcely appeared above ground, and the Sprouts were planted in the furrows. Peas, excepting the earliest, are 9 feet apart from row to row, and have two rows of Cauliflowers or Spinach between. A portion of these will be off in time to be followed by Endive and late Lettuces. Another

instance of double cropping which we sometimes practise with advantage is to plant alternate rows of late Broccoli and Cauliflowers 2 feet apart. When the Cauliflowers come off the Broccoli is left 4 feet from row to row, which admits plenty of air to harden it and plenty of room to walk between when it is wet in winter and spring. There is no waste of ground in this method, because space is always plentiful in winter, and if it is likely to be wanted before the Broccoli turns in the crop can be taken up and laid-in elsewhere at almost any time.

Two wet winters and a cold wet summer have not been quite the sort of seasons we should have wished for our heavy soil; they have left traces which will not be entirely obliterated this year if the weather is ever so favourable. It is all very well to say, Keep off the ground when it is wet, and to make resolutions to that effect; but crops must be gathered wet or dry, for monsieur the cook will not wait for fine weather or dry soil. Many of our Potatoes last July were dug when it was wet overhead as well as under foot. We use on the average nearly a bushel a-day, and last summer we had to dig a long way for a bushel. It is to be hoped we shall not have such another unfortunate season for a long time. We are using a good deal of burnt clay and lime this spring, and very little manure at present. By these means, with the aid of the fine drying weather we are now enjoying, an improvement may be confidently expected.—WILLIAM TAYLOR.

CULTURE OF MIGNONETTE IN POTS.

GIVEN sufficient space under glass a good gardener should have a supply of Mignonette in pots throughout the year. That this is desirable there can be no question, and I am inclined to think it is practicable in many more gardens where it is not attempted, it being really surprising in how few places we meet with good practice in the culture of this simple but charming old favourite. But there are exceptions—striking exceptions, and one such very recently came under my notice.

I happened about a week ago to be at Searles, the seat of Sir Spencer Wilson, and in looking through the compact and admirably finished little glass houses with Mr. Barnes I came upon about a dozen splendid specimens of Mignonette, any one of which would measure upwards of 2 feet in height and as much in diameter—thick dense bushes abounding with stout vigorous branches clothed to the centre with large, green, healthy foliage, full of growth, for they had no expanded flowers, hardly a visible flower bud, and with such an abundance of on-coming shoots for tying-out that they might if required be brought to specimens of the largest size in a brief space of time, or be made to burst into flower in their present very satisfactory stage of existence. "Why!" said I, "one of these plants in full bloom would fill a room with its perfume, and unless the room was a large one two plants would be almost overpowering." "Yes," said Mr. Barnes, "they are very sweet. We have some in flower in the conservatories now, and they are much liked." Of course I wanted to know all about them, for the chance to gain a lesson was too good to be

missed, and yet there was really very little to tell. The seed was sown last May; the plants, kept entirely under glass, were not suffered to become rootbound, but as the roots reached the sides of the pots larger pots were given, the soil used being a rich gritty loam, and when the plants were finally placed in the large pots in which I saw them the lower half of the pot was filled with manure placed upon the drainage and rammed into a firm compact mass, upon which the plant was placed and the upper portion of the pot filled with loam, so that each pot contained a mass of rich manure into which the plants had rooted, hence the robust growth and rude health.

Let me not, however, ignore the skilful training and painstaking care which had so evidently supplemented a clear and distinct knowledge of the food requirements of the plants. For some six months had they been tended—pinched, trained, and watered regularly; all simple matters, but all indispensable to success.

Does the term "rich gritty loam" puzzle anyone? If so, I may explain that soil from a meadow where the grass is good, or ordinary garden soil enriched with old hotbed manure, a little soot, and containing enough silver sand to afford a free quick passage to water, is what is meant. Liquid manure probably plays an important part here as the flower buds are forming and during their expansion. This I did not ascertain, but as then the richer constituents of the solid manure would be pretty well exhausted by the greedy roots, a rather frequent dose of clear liquid manure is calculated to be of material service and could certainly do no harm.—EDWARD LUCKHURST.

STEAMING, DAMPING, AND SYRINGING VINES— DUKE OF BUCCLEUCH GRAPE.

I WOULD not have desired to offer any further remarks on my success in growing the Duke of Buccleuch Grape, nor have referred to your able correspondent Mr. Douglas's failure in growing this splendid Grape. were it not to reply to his question as to my being prepared to reiterate my statement regarding good Grape-growers having discontinued "steaming, damping, and syringing" their Vines, and whether I produced any moisture at all in my vineries from evaporation. Mr. Douglas says that I said that I do not; but if he will look at my remarks again he will find, if words have any meaning at all, that I did not say anything of the sort. What I did say is that "the Duke of Buccleuch will not succeed under a system of steaming, damping, and syringing, now abandoned by all growers of good Black Hamburgs," but I did not say that I did not produce any moisture from evaporation in my vineries. Mr. Douglas states that the old system had been abandoned for the new one of no atmospheric moisture at all.

Your correspondent is no doubt well aware that there are extremes in almost everything, but I courteously object to being made to say that good Grape-growers aim at an atmosphere without moisture, and would remind him that if they did they would most assuredly fail. "Steaming, damping, and syringing" is the one extreme, and an atmosphere "without moisture at all" is the other, and both are no doubt inimical to the growth of good Grapes; but in the case of Vines otherwise well managed I would much rather approach the dry than the vaporising extreme point. The fact is, this atmospheric moisture is one of the most important points in Vine culture; and from a very much longer practice than Mr. Douglas, and a wide range of observation, I have come to the conclusion that there is far more evil to be attributed to the damp than to the dry extreme in the vineries of this country. However strange it may seem to Mr. Douglas, I am not acquainted with any really first-class Grape-grower who at this era of horticulture steams hot pipes, damps floors, and syringes his Vines. Mr. Douglas must mark my combination of circumstances, and remember that such was once a very much more common practice than it is now, and one which I have no hesitation in saying is not in harmony with the soundest Vine culture.

I am at no loss to understand why Mr. Douglas fails in growing good Duke of Buccleuch Grapes if he steams, damps, and syringes them; but I must confess that I am at a loss to understand how he brings out to our shows those clean Black Hamburgs if he follows this vaporising system. He is not so old nor so extensive a grower as I am, or he would remember how in my young days this steaming, damping, and syringing system combined was practised, and under which treatment I must reiterate I have never seen clean, well-finished, highly flavoured Grapes produced.

As I said before, I grow good Black Hamburgs and Duke of Buccleuch side by side in the same vinery, and, as one of the Editors of this Journal knows, they would not disgrace such a house of generally high culture as Loxford Hall. Mr. Douglas reiterates his inability to grow good samples of this Grape, and I am sorry for it, for it is, as he remarks, a noble Grape. It does seem strange that what some succeed in, others, such as Mr. Douglas, who ought to be expected to succeed also, fail in growing it well.

I will encroach on your space in giving what may be a clue to success in growing so desirable a Grape. This moisture, evaporation from steaming, and syringing has, I fear, in many cases something to do with it. I do not mean at its finishing stage only, but throughout its whole course of treatment. I give it no special treatment, but year by year over a long experience and extensive practice I have produced less and less moisture in the air of vineries by even sprinkling the surface of borders, not to say anything of steaming and syringing. I believe the latter to be a practice that will one day be obsolete, for I regard it as one that cannot be justified either by natural philosophy or vegetable physiology. Moreover, I believe the virtue of keeping down red spider attributed to the system to be a delusion, and that it creates a texture of leaf that invites that insect. Perhaps it is a system that first arose from the high night temperatures that were practised, and the two evils combined are incalculable in the case of Grapes grown under such artificial circumstances. In my own experience I find I can produce cleaner, better finished, and better flavoured Grapes, and finer wood and foliage, with a minimum of this vaporising system; and as to syringing, I rarely ever wet a leaf. The chief evaporation from artificial means that takes place in my vineries arises from occasional heavy waterings to inside borders; and even in that case I give more liberal ventilation to let the moisture quickly out for a few days, and there is nothing I dislike so much in a vinery as steam.

I practise low night temperatures, and like to see the pearly dewdrops on the edges of the Vine leaves at daybreak; and I venture to say that anyone who practises low night temperatures and a minimum of evaporation and syringing will never return to what I consider overheated pipes and water-spilling to counteract their bad effects. In this practice I have often wondered how it was possible to have ignored the teachings of Nature and the laws upon which a sound healthy growth is dependant. The result of this low night temperature and so little vaporising is very striking in the fine stout shoots, and thick dark green leathery leaves, and absence of red spider. Never in my earlier practice could I produce leaves of such colour and substance when the steaming and syringing was so common. Provided the Vines are in a good border and properly supplied with moisture at the root, I should like to ask Mr. Douglas if the atmosphere in this country is ever in a state of "no atmospheric moisture at all," or in one so much approaching to it as to injure the foliage or fruit of the Vine.

High night temperatures, a maximum of atmospheric moisture, and loose spongy rich borders I have come to regard as three of the greatest evils in Grape-growing. If lower night temperatures, less moisture by evaporation, and if borders were put together in a drier state and rolled or even rammed, and the animal manures were laid on their surfaces instead of being incorporated with the soil, all the other conditions of good Grape-growing are very simple indeed; and I cannot but think that the failures in producing really fine Duke of Buccleuch arises from some cause in itself not sufficient to mar Grapes of a hardier constitution, but which at the same time would be better absent.

Not being able to reply to Mr. Douglas's question as to the position of the Duke at Tweed Vineyard, I, on receiving your Journal took the liberty of writing and asking Mr. Thomson to what extent the Duke had a footing in his vineyard, and to-day I have his reply with his sanction to make any use of it I choose. Mr. Thomson writes: "I fruited the Duke for five years before it was offered to the public. In 1872 635 lbs. of it were sent to Covent Garden, and made exactly double the price of Black Hamburgs grown in the same house. I sent fruit of it that season to the Fruit Committee, with the request that before an award was made they should send a competent person to inspect and report on the crop of it here in all its aspects; and, as is well known, Mr. Barron made a careful inspection of it, and from his report it was awarded a first-class certificate. As far as I am concerned I do not

know of any other person who took such special precaution that the qualities of a seedling Grape should be justly estimated. We fruit heavily every year the seventy-one rods that Mr. Barron inspected, and intend, now that we are doing away with Pines, to extend it. We do not send so much of it to Covent Garden, the berry being large and the skin rather tender it suffers from the long journey; but our chief reason for not sending is the rapid home sale we have for it. One titled lady who buys her supply of Grapes from us stipulates for the Duke only, and requests that we keep a supply for her as long as possible. In 1876 we planted a number of Vines of it, and each Vine bore eight bunches last year, some of which took a first prize at Carlisle. These Grapes showed neither crack nor spot, and I may remark that the circumstances under which it is grown here are of the most ordinary kind. Had I been ever so anxious to retain the Vine in my own possession it would not have been easily done, for before it was sent out I had requests for eyes and Vines of it from all who saw it in crop here. I regret that good Grape-growers like Mr. Douglas fail to grow it well; but I remember the condemnation Lady Downe's met with and the position that Grape holds now, and I hope the same fate may ultimately be the Duke's."

The Duke will find its proper level some day like most men and things. In the meantime perhaps Mr. Douglas and others have a good right to condemn it from their own experience. At the same time I must regard it as a first-rate Grape, seeing that I cannot send any other Grape to my employer's table that has such a grand appearance, nor any that is more or even so much appreciated, and perhaps my foregoing remarks may help to show him how it is cultivated; if so they will be worth a place in your excellent Journal.—COLUMBUS.

VEGETABLE CULTURE.

CHAP. VIII.—THE CARROT.

THE Carrot is found growing wild in many parts of Britain. In some gardens it grows freely without much trouble, and in others it is very difficult to cultivate satisfactorily. With a little care, however, it can always be grown very fairly, and it amply repays any extra attention bestowed on it, as it is quite indispensable in the kitchen, and nothing else can be grown as a substitute.

We always sow our Carrot seed for the first drawings early in January, and from then on until the middle of February. The earliest sowing is made in a two-light frame on a dung bed. Leaves, stable manure, or anything that will ferment, is thrown into a heap and allowed to lie for a week before packing it up in a bed about a foot wider on all sides than the frame which has to be placed on it. When the bed is made up the frame is set on the top of it, and then about a foot of soil is placed all over the inside of the frame. This soil should always be of a light open nature, and when there is the slightest suspicion of worms or maggots of any kind being in it a quantity of fresh soot or lime should be mixed up with it. A spadeful of either of these ingredients to every barrowload of soil effectually prevents vermin depredations. As soon as the soil has been spread on the bed the seed may be sown. In frames we always sow it broadcast, as more produce can be had from a small space in this way than by sowing in rows. About half an inch of soil should be sprinkled over the seed. Early Horn or French Horn are the only sorts which should be grown in a frame. Either of these varieties sown the first week in January on a hotbed from 1 foot to 18 inches in thickness produce roots for use in May.

When the weather is favourable the first sowing of Carrots may be made in the open ground in the first or second week of February. At this time they should be sown on the early vegetable quarter, which is a south border, or the next warmest and most sheltered place to it. The two varieties named are those only that should be sown now, and as their roots do not descend more than 8 or 10 inches it is not necessary that the soil be more than 1 foot or 15 inches in depth. Of course if it is deeper than this it will do no harm, but at the same time a shallow soil need not be avoided. An open soil is, however, of great importance. Carrots will always succeed, so far as the openness of the soil is concerned, in ground from which Potatoes have turned out well and clean during the summer previous. We always have winter Turnips, Spinach, or something of that kind on our early Carrot ground, or it would be turned over and left rough in autumn; but as it is, it is only dug over a week or two before the seed is sown, and yet the result is very satisfactory. As prevention is always better

than cure, whenever the ground is dug for Carrots a quantity of soot and lime should be turned into the soil. This is a much safer plan than trusting to kill the maggot with some kind of liquid after the plants are up.

The surface of the ground should be broken fine with the fork just before the seed is sown. Drills 10 inches apart and 1½ inch deep should then be drawn, the seed sown thinly, and covered with fine soil. As soon as the plants are up sufficiently to show the rows the Dutch hoe should be run between them when the soil is dry. When the plants come up in crowds they must be thinned-out to 12 inches apart as soon as they are 3 inches high. By the time they again become crowded the roots will be forming, and every other one may be pulled out and used. It is very seldom that these short Carrots are stored for winter use, and they are best pulled out of the ground as required and used in the early part of the season.

For the main crop, which consists of long-rooting kinds, a deep soil is necessary; 2 feet is not too deep, and it should have been trenched to this depth either a year before or just before the crop has to be put in. When the soil chances to be heavy a liberal quantity of ashes and leaf soil should be worked into it besides the lime and soot. Rough manure, which will prevent the roots from penetrating straight and cause them to be forked, must not be added to the soil; and when Carrots are to be grown on a piece of ground which was heavily manured the year previous, better shaped roots will be secured if no manure is added when digging the ground for the Carrot crop. For the main crop in shallow soils James' Scarlet Intermediate is the best, and in deep soils Altringham and Long Red Surrey have no equals. About the middle of April is the best time to sow these. The rows should not be less than 1 foot apart. As the seed often adheres together it can be distributed much more evenly in the rows when it is rubbed between the hands and mixed with its own bulk of dry sand before sowing. As soon as the rows are visible the Dutch hoe must be run between them. When the plants are large enough to handle they should be thinned out to 3 inches apart. Run the hoe through them again after this. When the leaves again begin to meet every other plant must be drawn out, which will leave them 6 inches apart, a distance at which good roots and a profitable crop can be grown. After this thinning, and at intervals of about three weeks during all the time they are growing, they should be deeply hoed between the rows to keep the surface open and free from weeds. Their cultivation when sown broadcast in beds does not differ in any important particular from the mode of growing them in rows. They must be thinned the same, and a small hoe run amongst them occasionally. If the precaution has not been taken to make the soil obnoxious to grubs by digging in some of the above-mentioned materials for this purpose, when they do begin to eat the roots, which is easily known by the leaves turning yellow, these depredations are often stopped by watering the rows with lime water; soot water is also very good when used strong.

The roots need not be taken up until there is danger of frost injuring them. This may be in the early part or towards the end of October. They should not be lifted until after a few days of dry weather. The leaves should be cut close off to the crown, and the rough of the soil rubbed off with the hand as they are taken up. They should then be laid in an open shed for a few days to dry thoroughly before storing. When properly stored they will keep in good condition all through the winter and until the young spring Carrots are ready for use. The best way of storing them is to pack layer after layer of them in dry sand and in a cool dry shed. They should be turned over whenever there is any suspicion of any decaying. Where ground can be spared a patch of Short Horns sown in a sheltered position about the end of July gives a supply of sweet little roots late in autumn, but when a good main crop is grown the want of these is never felt.—A KITCHEN GARDENER.

CHRYSANTHEMUMS AND ZONAL PELARGONIUMS IN WINTER.

IN the Journal for January 24th is a note describing the system I adopt to obtain Chrysanthemum flowers in quantities through January. I have sent you a few blooms to show that these are still to be had, though now in diminished numbers. In the same note just referred to, the great value of Zonal Pelargoniums during the winter months is alluded to. I grow these almost entirely for winter work; and the easiest mode of

growing the plants, the results being as good as from more laborious modes, is to plant out young plants in summer, prepare them for lifting by raising each plant sufficiently to break off most of the roots, and a fortnight afterwards lift them entirely and pot them into the smallest pots possible. Place them in a cool position for another week or two, and then house them. The old plants after supplying cuttings are draughted into mixed borders.—R. P. BROTHERSTON, *Tynninghame*.

[The specimens were very good.—Eds.]

JUDGING ROSES.

WITH the exception of one point I do not think there is much difference of opinion between "WYLD SAVAGE" and myself. We both repudiate the complex methods offered for our acceptance, and I fancy we both disclaim the notion that a good judge need to be taught how he is to adjudicate. The one point on which we differ is on the value to be attached to Tea Roses in a stand, "WYLD SAVAGE" maintaining that their presence of itself constitutes a point in favour of a stand compared with those where they are not. I am, as he is, a great lover of the Tea Rose, and I am sure I shall disarm somewhat of his criticism when I tell him that the Editors of the *Journal of Horticulture* having placed at my disposal the sum of three guineas to be competed for at the National, I have allocated it to a class which has never yet been shown—eighteen Teas and Noisettes, six varieties, three blooms of each, and if I mistake not it will bring out some beautiful stands; so if I differ from him it is not that I undervalue this very beautiful and chaste class of Rose.

Well, the same Journal in which his last note appears gives evidence that there are some people who have that chronic cold in the head about which he writes. When he names *Maréchal Niel* and *Cloth of Gold* he names two Roses that are not Teas but Noisettes, and Roses which have such an exceptional position that they are hardly to be taken into account. Leaving them on one side, what do we find in the election of Roses?—that Hybrid Perpetuals head the list; and that while *Marie Baumann* receives forty-six votes *Catherine Mermet*, the highest of the Teas, receives only thirty-five; and that while "WYLD SAVAGE" places six Teas and Noisettes as the highest in order of merit in his list, not another elector places one in the first six save *Maréchal Niel*. Now let us suppose two stands of twelve in which the Roses are the best of their sort that can be shown, one to comprise the twelve highest in the list—*i.e.*, *Marie Baumann*, *Alfred Colomb*, *Charles Lefebvre*, *Maréchal Niel*, *Baronne de Rothschild*, *François Michelon*, *Louis Van Houtte*, *Etienne Levet*, *Marquise de Castellane*, *Madame Victor Verdier*, and *Duke of Edinburgh*; and the other to contain, according to "WYLD SAVAGE's" list, *Maréchal Niel*, *Souvenir d'Elise*, *Souvenir d'un Ami*, *Marie Van Houtte*, *Catherine Mermet*, and any seven in the first stand. I contend that in judging the adjudicators ought to decide on the merits of the Roses, and not score a point for No. 2 because it contains five Teas and the other only one; and I say also that the great body of electors who placed their Roses in order of merit bear me out in this.

I may, without betraying secrets, say that this subject was discussed at the adjourned meeting of the Executive Committee of the National Rose Society the other day, and that one of its members who is thoroughly competent to do it undertook to collect opinions on the whole subject of judging, and has kindly promised to prepare a paper for the Society.—D., *Deal*.

I ENTIRELY endorse "WYLD SAVAGE's" main position. I protest against the complicated systems of card-placing and minute giving of marks as impracticable at any large show, and likely to lead to endless disputes. When I have myself judged, the system which he describes has always been the one followed, and, in going over boxes afterwards with nurserymen and their foremen, it has been the method invariably pursued if we wished to criticise the judging. It is unfair to criticise the judging unless it be done early; blooms alter so much.

Mr. Camm differs in no essential from Canon Hole, who defines at page 207 ("Book About Roses," ed. 2) what a show Rose is, and at page 259 what a Rose judge should be; and I firmly believe that almost all practical exhibitors are agreed about it. The precise order in which the points of merit stand is not in my mind very essential. If a Rose lacks utterly any main point it is a bad bloom, whether it be an ugly shape, dirty colour, or puny size. I do not believe that any proposal to allow for the distance that blooms have been brought would

be entertained for a moment. The only question is what they are now. The really important need is to have competent judges, and it is here that country secretaries often fail from want of knowledge of the special subject. I have never had a word to say against the verdict passed on my blooms at a London show, but elsewhere it has not always been so. Twice last year I suffered in this way, my estimate being confirmed by a first-class nurseryman. Secretaries of country shows do not always understand that only a successful exhibitor at first-class shows can really judge. I believe that no man can be a competent judge who is not constantly engaged with a large collection of Roses, and is also a successful exhibitor. Matters are not indeed so bad as in the days when judges were appointed because they had once taken a prize for Cucumbers, or because the mayor knew their uncles, but they are still sometimes appointed because they are clever gardeners, or for some other insufficient reason. An exhibitor should make sure that he is a better rosarian than the judges before he controverts their verdict. I have often silenced a discontented exhibitor by the remark, "Do you know who judged them?"—T. H. GOULD, *Mortimer*.

I AM neither a Tea man nor a Perpetualist. I am not sure that I am a rosarian, but I have been a lover of Roses for thirty years and a grower of them for more than twenty years. I have attended some of the best metropolitan Rose shows, and have judged at a few metropolitan exhibitions. I have observed much perplexity on the part of judges and discontent on the part of exhibitors. So it must ever be when men have to lay down the law without any law to guide them. Exhibitors as a body cannot be satisfied so long as judgment depends on the mere fancy of an individual. Unless the National Rose Society frames rules of guidance, clear and explicit, for the judging of Roses, I do not think it can be "looked up to" higher than any other Rose society.

I regard Roses as Roses—not as Teas or Perpetuals. I cannot see why a Tea Rose, because it is a Tea, should have an additional point, or, in other words, that a two-point Tea should rank equal with a three-point Perpetual. I cannot see the justice of such an arrangement; yet if the National Rose Society rule that it must be so I will loyally obey.

I have mentioned "points." There must be points in judging. As there are degrees of excellence in different blooms those degrees must have expression. I fail to see that the point-card system of "H. C." is so tedious as many suppose it to be. I have often seen some of the great judges so puzzled that rough strips of paper had to be called into requisition to "mark" certain blooms. If Roses can be judged without badges numbered 1, 2, and 3, well and good; but I am almost certain that there have been occasions when if the judge had had a bundle of such numbers that he would have been glad to have employed them by way of helping him out of his difficulty.

Hybrid Perpetual and Tea Roses are so distinct, and each section contains so many varieties and colours, that the most intelligible way is to exhibit them in their separate classes. In judging Grapes Black Hamburgs are not compared with Muscats, simply because they are not comparable; neither are Teas and Perpetuals. Teas can only be compared with Teas, and Perpetuals with Perpetuals; if otherwise, exhibitors are at the mercy of the fancy of a "class" rosarian. If the mixed system is to continue I shall vote for Teas to be judged as other Roses. If they are to be considered as belonging to a higher category and to have additional points accorded to them by certain judges, it will be a simple act of justice to exhibitors to publish the names of judges in order that the stands can be arranged to meet the peculiar fancy of a particular judge.—M. N. R. S.

EARLY PEAS.

MY experience with early Peas is in accord with that of your correspondent Mr. A. Campbell on page 132. I sow about the third week in November on a south border, placing the rows 6 feet apart; the space between is occupied during the spring with Radishes and other dwarf-growing vegetables. Like Mr. Campbell I never think of protecting the Peas, as forty years of experience has taught me they do not need it. *Dillistone's Early Prolific*, *Sangster's No. 1*, and *Dickson's Favourite* are the sorts I have grown for a number of years; they come in succession as named. *Prizetaker* sown at the same time and *Laxton's Prolific* a month later afford us a fine

succession till the summer varieties come in. We sometimes suffer from mice (they are watched and trapped), likewise from sparrows and wood pigeons, but a dusting of lime and soot is a very good remedy against them. When the plants are well above ground and the weather is favourable a little soil is carefully drawn to and among them, and when they are sufficiently advanced we stake them. I am of opinion that no one need fear sowing Peas at the time stated without the soil is very unkindly and the situation specially unfavourable. The earliest Peas that I ever gathered in North Yorkshire not far from the sea were Dillistone's Early Prolific sown November 5th, gathered May 6th. The soil and situation were not of the most favourable description.—N.

NOVELTIES IN THE ROYAL GARDENS, KEW.

THERE is scarcely anything more lovely than Xiphion or Iris Histrio, a charming herald of coming spring. Most nearly allied to *X. reticulatum*, it is livelier in colour and abundantly distinct in many particulars. It has erect, glaucous, acutely four-angled leaves, reaching to about 1 foot high, equal to twice the height of the flowers. These are from 2 to 3 inches in diameter; the outer segments or "falls" are spreading, of which the claw is purple and the blade chiefly blue; a golden line runs up the centre of the exposed portion to about its middle, and is decorated with a few small purple spots; from this golden line on a white ground radiate a few bluish-purple streaks, about which are large blotches of the same colour losing themselves on the outside in the pale blue margin; the inner segments or "standards" are lanceolate, pale blue, and erect. It is a native of Mount Lebanon, and has received the manuscript name of *Iris Libani*. To all appearance it is quite hardy, though, from its great rarity, no extreme trial has been made.

Dendrobium Freemanii is a new Orchid introduced by Mr. William Bull, and the plant he presented is flowering for the first time. At first sight it brings a thought of *D. nobile*, but immediately it is seen to be quite distinct. It has the same colours disposed in the same way; the sepals, however, are much narrower, and the lip is rounded instead of having a recurved point, it also has a longer claw. The stems are perhaps still more strikingly different; they are slender and evenly formed throughout, those bearing the flowers have an attractive whiteness from the dried persisting sheaths of the fallen leaves. It was discovered by Mr. Freeman in Assam. *Cypripedium Boxallii* is another new species in flower in this house. In habit and in foliage it is not unlike *C. villosum*, to which perhaps it is most nearly allied, though the flowers readily prove it a distinct species. They give also the idea of *C. insignis*, to which in the lip and the superior sepal it bears some resemblance. The latter is conspicuous in its marking and colouration; over a groundwork of very light green there are many large black-purple spots, and round the outside above is a margin of white. It is distinguished from *C. villosum* by the shorter peduncle, the smaller flower and comparatively larger bract, the breadth of superior lip at the base, the narrow clawed petals, which are obtuse and dilated at the apex, and the obtuse inferior sepal, besides, of course, some other points. It was discovered by Mr. Boxall, after whom it is named, and was introduced by Mr. H. Low.

The next novelty is one of the "princes of the vegetable kingdom"—*Ptychosperma rupicola*, the flowers of which are here expanding for the first time unassisted by the spicy breezes that "blow soft o'er Ceylon's isle." In that island it grows on the lower rocky lands and attains a height of 40 feet. It is of some interest to the natives; they find in the seeds a substitute for those of *Areca Catechu* to chew with their Betel. Besides flowering for the first time this particular specimen has the interest of being the finest in cultivation, and that of one of the most beautiful of all Palms. It was grown from seeds received at Kew about fourteen years ago. It long remained without an apparent stem, but which having commenced growing soon reached a height of over 3 feet, and now the finer fronds are reared to a height of 10 feet. The fronds are pinnatisect, and the diameter of the crown extends to over 8 feet. They form graceful curves in every direction, every part, as it were, aiming at the line of beauty. Armed to the teeth, as in a flight of fancy we may say many Palms are, this, on the contrary, is without a single sharp point. All over the fronds are glaucous, and from their first appearance to full expansion are attractively coloured red. They have great breadth in proportion to length, and, as cultivators say, make

up a "well-furnished" plant. The inflorescence or spadix comes just below the lowest leaf, and is composed of about twelve spicate branches coloured with crimson-red, as if formed of coral. The buds are of the same colour, but the open flowers are pale, showing yellow anthers. They are produced in pairs, and one of each pair on the lower part of each branch is female. This splendid Palm is in the Victoria house.

In the Begonia house are often found many plants of select character. A large number of Gesneraceae have been grown there the past season, one of which, profusely flowering at the present time, appears to be little known, yet it is of great value. This is *Tydea Madame Heine*. All the summer we have watched it occasionally producing a few flowers, and were inclined to think it of little consequence. Now, however, its time has come. It grows about 3 feet high. The leaves are velvety and pale green; the flowers are large, with inflated carmine tube, white or creamy-white lobes, the upper suffused with carmine, and all equally covered with purple-black or deep carmine dots. The roots were planted last spring about three together in a pan, using light soil, and a liberal supply of water during growth has been given, as required by all the order. It is a great mistake to grow these plants so thickly together as often practised; every plant should have room to fully develop. *Achimenes* are often absurdly crowded together, resulting in a flare of colour for a short time, then bearing a few flowers like dying sparks to make the starved leaves conspicuous. These beautiful plants, flowering as they grow, must have sufficient space and food to produce the growth, without which there are few flowers.

A new *Hæmanthus*—*H. albo-maculatus*, contributed by Messrs. E. G. Henderson & Son, now flowering in the Cape house, opens up a new feature in the genus, that of spotted leaves. Of this specimen they are about 14 inches long, strap-shaped, and liberally ornamented with large ivory spots. The flowers are pure white, and, as in other *Hæmanthus*, are produced in a crowded head. The spathe-valves, which in *H. coccineus* are strikingly ornamental from their crimson colour, are in this case white or greenish-white.

VINE BORDERS.

I GENERALLY agree with what "A KITCHEN GARDENER" writes in the *Journal of Horticulture*, as he is evidently a practical man; but though no doubt Mr. Taylor is very well able to hold his own, I cannot but find exception to some of "A KITCHEN GARDENER's" statements about inside Vine borders and the method he recommends for making Vine borders. No person, he says, could rightly understand that by adding one-third of the whole it was applying it in equal parts. Now, adding one cartload of cow dung and one cartload of wood ashes to three cartloads of loam is virtually one-fifth cow dung, one-fifth wood ashes, and three-fifths loam, without reckoning the bushel of smashed bones. Neither again do I think, unless under very exceptional circumstances, that cow dung is the best manure for Vines, and is certainly not so lasting in its effects as well-decayed stable manure mixed with pig manure. Much depends, again, whether the wood ashes are merely the refuse of bonfires and charred vegetable matter or properly prepared charcoal, which, if not overburnt and well broken up, is one of the best materials possible to add to Vine borders if the loam is at all clayey or of a tenacious nature.

As for saying either that all Vine borders should be inside or all outside, both statements would be equally wrong. That many gardeners abstain from giving water to inside Vine borders, especially when the Vines are in a state of apparent rest, is perfectly true; but those who know anything of the natural habits of the Vine know full well that it is during the winter in Vine countries that the Vines receive their chief supply of water, and that the rootlets of Vines are seldom, if ever, in an inactive state. To condemn inside Vine borders because when late Grapes are hanging on the Vines in the winter it is dangerous to give water, is to ignore the fact that it is far easier to cut off the bunches with a sufficient amount of stem attached and to place the stems in bottles of water in a dry airy room where heat can be applied if necessary. This plan has been so often advocated in your columns that it is scarcely necessary to allude to it. "A KITCHEN GARDENER" seems to admit of no medium position between having an inside border saturated with water or dust-dry. Surely either extreme is equally absurd, just as was the old custom of drying-off stove and greenhouse plants at their roots during the winter instead of keeping the rootlets alive by adequate moisture. I venture

to give a hint to many gardeners, "that there is no royal road to gardening;" one soil requires one kind of management and another another. One garden has climate and winds to contend with, another is sheltered and warm. Where I am writing these few lines (at Cannes in the south of France) there are changes both in the soil, subsoil, rocks, stratification, nature of undergrowth, &c., within 100 or 200 yards. Along a new road which is being made I have seen both soil, subsoil, and rock vary in a few yards from soft mica schist with sandy soil to different-coloured mountain limestone with red tenacious clay, varied with soft chalky soil mixed with China clay in small proportions, and in another part hard stalactite-formed limestone which requires to be blasted.

"A KITCHEN GARDENER" is beginning a series of papers on Vegetable Culture, which I have no doubt will be both interesting and instructive, but I hope he will abstain from laying down the law too definitely; as, for instance, where he says, "Any garden above one acre in extent should be surrounded by a red brick wall 9 inches thick and 10 to 12 feet high;" and again, "The basement of the wall should consist of stone up to the ground level, and the bricks which follow this must be substantially and neatly built-in, and the coping should be of dressed freestone placed so as to project about 3 inches on each side," &c. I object strongly to the law being laid down in this sort of way, as if it might not suit better in many cases to have stone walls faced with hollow bricks; or again, to have 13½ brick walls instead of 9-inch, or brick copings properly made instead of dressed stone. The plan, too, of zigzag brick walls for the north wall of a garden has never yet been sufficiently tried, and must eventually be found to answer, as it gives greater strength, more varied aspect, and easier means to protect fruit trees by glass copings and curtains or strong Nottingham net. I do not wish, however, to dwell more upon this point, but hope that when laws are given for vegetable culture, or fruit-tree pruning, or garden walls, garden borders, &c., a little more allowance might in a general way be made for the diversity of soils, aspects, climates, means and capabilities to boot, that different gardeners have to contend with under different circumstances. When gardeners have done their best there are still many important points not under their control, and to the very last there will be different means to the same end.—C. P. P.

OUR BORDER FLOWERS—GLOBEFLOWERS.

GLOBEFLOWERS are an acquisition to our collections of border flowers, and under many circumstances repay us for any labour we may bestow upon them. They are what may be termed late-spring or early summer-flowering plants of dwarf habit and pleasing appearance while in bloom. They are moisture-loving plants, bearing full sunshine and partial shade. What we call our own European Globe-flower (*Trollius europæus*) is one of the most beautiful field flowers we possess. It is found in moist upland districts, often by brooks in out-of-the-way places. The white variety of the above is a very interesting plant, and ought to be much more cultivated than it is. They are fine plants for open spaces in half-wild places by the side of ornamental waters and moist woods. We are told that the Swedes in holiday time strew them about their doors; while drying they give off a delicate perfume. The American Globe-flower (*Trollius americanus*) one of the dwarfiest of the tribe, is of pleasing habit, and is a desirable and useful border plant, also effective on a large rockery. *Trollius napellifolius* is much like *europæus*, but of deeper colour. *T. patulus* deserves more attention than it receives; it is of a pleasing orange colour. The Siberian Globe-flower (*T. asiaticus*) is the most attractive of the family, having deep orange-coloured flowers. Where a group of them are planted together and cared for they make a fine bed in the spring and early summer. They are not particular as to soil. A good loam and decayed vegetable matter with moisture when they need it will meet their requirements. They are increased by division after flowering. If left till the spring the crowns are liable to be injured.—VERITAS.

RASPBERRIES.

I WANT to ask a question on the subject of "WILTSHIRE RECTOR'S" remarks on this fruit. He says that ground becomes Raspberry-sick, and that hence they must not be grown too long in the same place. Is this so? because if it be it runs counter to all I have ever been taught on the subject.

I remember dear old Weaver, the Warden's gardener at Winchester, showing me Raspberry quarters which he believed to be nearly a hundred years old; and I have always understood that they would stand any length of time, provided they received reasonable cultural attention. Mine have succeeded for nearly nine years, and I thought they would last my time. Will some fruit-grower kindly answer me this question?—D., Deal.

[We are acquainted with a healthy and fruitful plantation of Raspberries that is upwards of forty years old. We shall be glad to hear what other cultivators have to say on this subject.—EDS.]

ROYAL HORTICULTURAL SOCIETY.

FEBRUARY 19TH.

ONLY a small quantity of fruit was exhibited on this occasion, but extensive and valuable collections of plants were staged, and the Council-room, which was quite filled, had an exceedingly gay appearance.

FRUIT COMMITTEE.—Henry Webb, Esq., V.P., in the chair. Mr. E. Robbins, gardener to Sir E. A. Lechmere, Bart., Rhydd Court, Upton-on-Severn, sent a dish of Easter Beurré Pear remarkably well kept and of excellent flavour. A cultural commendation was awarded. Major Mason of Warwick sent specimens of two varieties of seedling Apples, one raised from Bess Pool and the other from Dumelow's Seedling. The former though long past its best had every indication of being a good dessert Apple, but the latter was not considered to possess any great merit. The Committee expressed a wish to see the former another year in better condition. A letter of thanks was awarded to Major Mason. Mr. B. Johnson, gardener to T. T. Clarke, Esq., Swakeleys near Uxbridge, sent a dish of Golden Knob Apples in fine condition, to which a letter of thanks was awarded. Mr. Francis Dancer of Little Sutton sent a dish of the following varieties of Apples: Reinette de Caux, Braddick's Nonpareil, Cox's Orange, Dumelow's Seedling, and Golden Reinette, to which a letter of thanks was awarded. Mr. B. R. Davis of the Nurseries, Yeovil, sent a dish of bulbs under the name of Davis' Prize Jersey Shallots, which were the Potato Onion. Colonel Trevor Clarke sent specimens of his Red Solid Celery, which was pronounced by the Committee to be the finest Celery in cultivation.

FLORAL COMMITTEE.—Mr. Noble in the chair. Messrs. James Veitch & Sons exhibited a beautiful collection of Orchids, amongst which were *Angræcum sesquipedale* with six flowers, another plant having four very fine flowers; *Cattleya Trianae*, *C. Trianae alba* very pure, and *C. Trianae Penelope* distinct from its pleasing colour and undulated sepals and lip. *Odontoglossum Alexandræ* was represented by vigorous spikes, also *O. prenitens*, *O. triumphans*, *O. cirrhosum*, and *O. Chesteri*, which appears intermediate between *O. Alexandræ* and *O. gloriosum*. *Angræcum citratum* was very lovely, as also was *Odontoglossum Roezli album*. The small *Oncidium cheiroporum* was effective by its bright yellow flowers, and extremely curious was the grotesque *Masdevallia chimera*. *Bolbophyllum aurioconum* is a singular small Orchid, as also is *Dendrobium endocharis*. Several *Cypripedium* were included in the group, also *Sophronitis grandiflora*, the charming orange-buff *Rhododendron Duchess of Teck*, heads of the double *Poinsettia*, and a collection of very fine *Cyclamens*. A botanical commendation was awarded to Messrs. Veitch for *Aërides vandarum*, a remarkable species from India. The leaves are quite round and somewhat resemble spines, about the eighth of an inch in diameter and 6 inches in length; the flower is pure white, and from its singular formation almost resembles a double flower. A small silver medal was recommended for the whole collection.

Mr. Wills contributed an attractively arranged group. The base was composed of *Lycopods*, *Spiræas*, and *Lilies* irregularly arranged, with which were associated Orchids—excellent spikes of *Odontoglossum Alexandræ*, *Phalenopsis Schilleriana*, *O. cirrhosum*, *O. gloriosum*, *Lælia anceps*, and *Dendrobium glumaceum*, under a canopy of *Palms*. A vote of thanks was recommended for the collection.

Mr. B. S. Williams sent a collection of very choice Orchids, consisting of *Masdevallia ignea*; *Odontoglossum Alexandræ*, *cirrhosum*, and *Rossii major*; *Dendrobium Wardianum*, very fine; *D. cuculatum giganteum*, and the new and distinct *D. superbiens*, which has continued in bloom for ten weeks, a fact which must enhance the value of a valuable plant. *Cypripedium insigne Maulei*, *Tricoplia suavis*, and *Cattleyas Walkeriana* and *Trianae* were attractive. Mr. Williams's collection also included some bright and good *Amaryllises*, *Sarracénias*, *Habrothamnus elegans argenteus*, and *Palms*, several plants of an excellent variety of *Solanum* with numerous large bright berries, also some highly superior *Primulas*. The old white and rosy-purple varieties are not easy to surpass in their respective colours; and the new scarlet variety, *Primula sinensis fimbriata coccinea*, was awarded a first-class certificate. The plants are equally robust, and the flowers are of the same size and substance as the others, but the colour is a bright magenta.

which will have the important property of being effective by gas-light, and can thus be employed for decorative purposes where the ordinary dark Primulas present a comparatively pale appearance. Mr. Williams further exhibited plants of *Dracena Renardii*, one of Mr. Wills's new varieties; *Croton Jamesii* and *C. falcatum*, both of which are distinct; and admirably grown table plants of the still valuable *Dracena terminalis*. A bronze medal was recommended for the entire collection.

Messrs. Osborn & Sons, Fulham, staged an extensive and excellent group of ornamental-foliaged and general decorative plants, consisting of Palms, Crotons, *Dracenas*, *Pandanuses*, Ferns, *Azaleas*, *Spiræas*, &c. The plants were remarkably clean and healthy, and were attractively arranged. A small silver medal was recommended to be awarded to Messrs. Osborn.

Messrs. John Standish & Co., Ascot, exhibited splendid pots of Lily of the Valley. The flowers were almost as closely arranged as in a bouquet, but it is only fair to say that they had evidently been packed and not grown in the pots. The same firm also exhibited admirably grown and flowered plants of *Chorozema cordatum* splendens which were extremely effective, also *Azalea mollis*, and forced plants of *Hippolyte Jamin Rose*, which is evidently a valuable variety for early flowering. A bronze medal was awarded.

Messrs. W. Paul & Son, Waltham Cross, exhibited a plant of the pure white *Camellia Ninfæ Egeria*, very smooth and good, and with rich dark foliage; also cut blooms in upwards of fifty varieties, which were arranged in moss after the manner of exhibiting Roses. The varieties were superior, and the effect produced excellent. A bronze medal was recommended for them.

Mr. William Bull was awarded a first-class certificate for *Hæmanthus rupestris*, received from the west coast of Africa, which is decidedly richer in colour than *H. cinnabarinus*. Mr. Bull also exhibited a few other new plants.

Messrs. Rolliason & Sons were awarded a botanical commendation for a miniature Orchid, *Saccolabium Calceolaria*.

Mr. Cannell, Swanley, sent plants of his new *Geranium Salmon Vesuvius*, a variety which, from its pleasing colour and extreme floriferousness, cannot fail to become popular; also cut blooms of *White Vesuvius*, the fame of which may be said to be firmly established; also Dr. Denny, a richly coloured flower, purple lake suffused with crimson.

Mr. Charles Edmonds, Hayes Nursery, Middlesex, exhibited an extremely fine collection of Cyclamens. The plants were admirably grown, and the varieties were varied and excellent. A first-class certificate was awarded to *C. persicum Roseum Grandiflorum*. It is a very free-growing and flowering variety, having flower stems a foot in length and well-formed flowers, deep eatiny rose-and-crimson mouth. It is a very fine variety. Mr. H. B. Smith, Ealing Dean Nursery, also staged an excellent collection of Cyclamens, some of which had very large flowers. A first-class certificate was awarded to *Rosy Morn*, deep rose faintly suffused with purple, a medium-sized flower of a distinct and pleasing colour. Mr. James, gardener to W. F. Watson, Esq., Redles, Isleworth, was awarded a first-class certificate for a very fine pure white Cyclamen, appropriately named *White Beauty*. The plant is robust, the flowers large and well formed, and the colour pure. Mr. James also staged about a hundred plants of new seedling *Cinerarias*, which commanded much attention. The plants are of sturdy growth and are varied in colour, some of the colours being very soft and others extremely rich; the flowers are also well formed and possess great substance of petal. A rule of the Society precludes certificates being awarded to seedling *Cinerarias*, but a bronze medal was recommended for the collection.

The Hon. and Rev. J. T. Boscawen, Tregothnan, Cornwall, exhibited a plant of *Amaryllis Temeraire*, an excellently formed flower of a glowing vermilion colour, and received a vote of thanks. H. J. Elwes, Esq., was awarded a cultural certificate for *Narcissus monophylla*. Mr. G. F. Wilson exhibited a *Primrose* named *Scott Wilson*, which was distinct from its bluish-plum colour. Some surprise was manifested that a plant having a colour so new and so rich did not receive some mark of recognition. Mr. Dean also staged two pretty *Primroses*—*Virginia*, white; and *Attraction*, purplish mauve. Mr. Johnson, gardener to T. T. Clarke, Esq., Swakeleys, Uxbridge, exhibited admirably grown plants of the fragrant *Daphne indica rubra*. They were nearly 3 feet through and high. A cultural commendation was awarded.

Mr. Winn, gardener, Wood Street, Birmingham, had a vote of thanks awarded for a richly spotted variety of *Odontoglossum Alexandræ* var. *Winnii*. Mr. Ollerhead exhibited a very fine variety of *Odontoglossum Alexandræ*, the spike having thirteen flowers. The same plant was exhibited last year with twelve flowers. Mr. Melville, gardener to the Duke of Sutherland, exhibited *Snowdrops*, including *Dunrobin Seedling*, a large pure white flower; and Mr. Tillery, gardener to the Duke of Portland, was awarded a vote of thanks for cut blooms of hardy hybrid *Azaleas*.

Mr. T. Wilkinson exhibited his new *Pea trainer*, the framework of which is made of wrought iron, with feet flanging outwards, so that the trainer can be firmly fixed without injuring the roots of

the Peas; the growths are supported by wire affixed to the standards. The meeting was a highly successful one.

DURING the afternoon a large number of horticulturists and visitors assembled in the Council-room, where Mr. Jennings, the Assistant Secretary, delivered an admirable lecture on the Cyclamen, the chair being occupied by Col. Trevor Clarke. In commencing his remarks Mr. Jennings observed that as it had been suggested that the meetings would be rendered additionally interesting and instructive by addresses on the history and cultivation of various plants, he was prepared to carry out the suggestion, trusting to the aid that he felt sure would be readily rendered by nurserymen and amateurs in supplying specimens, and otherwise giving valuable co-operation in carrying out the object proposed.

As a genus the lecturer observed that the Cyclamen is confined to the countries bordering on the Mediterranean—South Europe, West Asia, and North Africa; it could, therefore, scarcely be considered an English plant, although as being found growing in some Kentish woods it may be regarded as naturalised. Two of the hardy species, *C. coum* and *C. hederæfolium*, were cultivated in Gerard's garden as long ago as 1596, and *C. persicum* was introduced by Sibthorpe from the Isle of Cyprus in 1781. The original *C. persicum*, although very beautiful by its pure white flowers and graceful habit, is far eclipsed by the magnificent specimens now exhibited in the room. After alluding to the confusion existing in the nomenclature of the species, and after pointing out errors, such as the figure of *C. hederæfolium*, *Bot. Mag.*, 1001, which is really *C. vernum*, and that the same plant was figured by Sweet as *C. repandum*, also that the same writer has figured *C. ibericum* under the name of *C. vernum*, Mr. Jennings remarked that for all practical purposes the number of species might be reduced to six—namely, *C. coum*; *C. ibericum*, including *C. Atkinsii*; *C. vernum*, including *C. repandum*; *C. europæum*; *C. hederæfolium*, with its geographical forms of *C. africanum* or *macrophyllum*, *C. græcum* or *latifolium*; and *C. persicum*. The various points of distinction were alluded to, and the different species were lucidly described. These descriptions, with practical notes on the increase and cultivation of the Cyclamen, will appear in the forthcoming number of the Society's Journal. In concluding his lecture Mr. Jennings acknowledged his indebtedness to Mr. Little of Hillingdon, Mr. Tyerman, Mr. Atkins, and Mr. Barr, who had supplied specimens and imparted much valuable information, which he had incorporated in his address.

The address was listened to with great attention, and a cordial vote of thanks was proposed to the Assistant Secretary by Mr. G. F. Wilson. More of horticultural life pervaded the Council-room than has been observed for some time past, and it was generally admitted that the proposed series of addresses would be of great benefit to the Society and to horticulture generally.

Ten new Fellows were elected during the afternoon.

THE OLD MARKET GARDENS AND NURSERIES OF LONDON.—No. 19.

IN again taking up the locality of Chelsea, a suburb once so greatly favoured by the nobility and gentry as to be called a "village of palaces," I would remark that I hope no reader of the previous article fell into the misapprehension that I had said all that needed to be said or all I knew about the nurseries there. A division was necessary, and now in completing I gladly make some corrections which further researches have put in my way, and also acknowledge publicly the valuable information kindly given by Mr. John Weeks of Temple Dinsby, Hitchin. In the first place I note that I erred in the supposition that the ground at present occupied by a Roman Catholic convent and school in Cadogan Street was at one time part of the land belonging to the King's Road market gardeners. It was, before it was built upon partially, the Wellington cricket ground, and tracing back the history of this plot to the eighteenth century it seems then to have been the garden attached to an "ancient house," the property of Lady Matthews, abutting on the Marlborough Road, then a circuitous rural lane. It has recently been stated in the sketch of the life of John Fraser, nurseryman and traveller, that appeared in these pages, that his nursery occupied ground subsequently taken by Government for the Royal Military Asylum; it appears also that he called his establishment an "American nursery," but it must be distinguished from the American nursery in Sloane Street already spoken of connected with the historic names of Curtis and Salisbury. Nor was Fraser's the establishment afterwards known as "Whitelands," as the former had ceased to exist about 1810, while the latter flourished to a later date. It had not much extent of ground, its frontage to the King's Road being the small block of houses between the old "Hemus Terrace" and "Whitelands House," now a training school. That part of the King's Road which

runs along the centre of Eaton Square is not in the line of the old thoroughfare which went across the "Five Fields" at a considerable angle past Belgrave Square, sweeping round again into Sloane Square, during the time good George III. used to traverse it frequently on horseback. Though the greater part of the "Five Fields" was open or common land, a Mr. Jenkins had some 15 acres in cultivation up to the time the squares began to be formed which lie between Sloane Street and the Knightsbridge road. Allusion has been made to the nursery of Messrs. Allen & Rogers. The position of this was, I find, just opposite the present Eaton Chapel and Coleshill Street, as an old resident informs me, who remembers that street when it was a road with a ditch on each side. When Mr. Moore's nursery, just beyond Colvill & Davey's, was taken for building purposes Mr. Moore removed to the opposite (south) side of the King's Road at the corner of Radnor Street, where the business was carried on some years longer. "Little's Nursery," now much diminished in extent, has been in the same family for three generations; it is chiefly devoted at the present time to the production of "Chinese Moss." The frontage of Mr. Rolle's nursery extended from "The Six Bells" to the corner of "Cook's Ground," as it was formerly called, the land being now intersected by Oakley Street. Mr. Rolle's ground stretched back some distance, but it did not reach to the bank of the river. The old appellation, "Cook's Ground," given to what is known as "Glebe Place," a circuitous street running from the King's Road to Cheyne Walk, suggests that it had the name from some former owner, though none of the local historians have given any account of a person to whom it might be traced.

A small chapel in this street is interesting because it carries the memory back to the time when there was quite a cluster of French gardeners in Chelsea, employed in its nurseries and gardens. These were of Huguenot extraction, belonging to those refugees who were driven from their homes by the severe edicts issued against them, and found a welcome shelter in England. Dr. King, the antiquarian rector of Chelsea, has spoken in high terms of their behaviour; from him they received much kindness. The entrance to Cook's Ground, we may infer from an examination of the old maps of Middlesex, was originally a back way to the gardens of Alston House, one of those old palatial residences overlooking the Thames which made Chelsea famous. A few hundred yards down, before the road bends to the right, is the chapel aforesaid, in the erection of which the French gardeners and other Huguenots were concerned. Mr. Roll, or Rolle, was, I presume, a Frenchman. Another Frenchman had an establishment a short distance down Cook's Ground towards the west. The house once belonging to that nursery was not pulled down till 1867 or 1868. This was a Mr. Pamplin, or Pamphillon, some of whose descendants are still resident in Brompton. Across Church Street, or Church Lane, to the west of Cook's Ground, and occupying the space to the road leading to the bridge, was the nursery and market gardens owned by Mr. Shepherd, of whom no local recollections survive; we are therefore left dependant on the Chelsea historian, Faulkner, for facts about one who is said to have been celebrated in his time. He tells us that "Mr. Shepherd first introduced into this country the Italian mode of horticulture, of which his garden, as represented by Kip, was a beautiful specimen." Danvers House and its gardens had occupied the land he cultivated at an early period, and portions of the remains of this old residence were unearthed during some gardening operations in 1822; apparently it had never been pulled down, but suffered to fall to decay. A large stone bath had been brought to light and part of a row of columns. Mr. Shepherd, however, did not care for having investigations pushed further on his property, so these were covered up again. Danvers House was about the site of the present Paulton Square. Subsequently some of the ground owned by Mr. Shepherd was cultivated by Mr. Lamer; it is now all enclosed, as also the land opposite on the north side of the road. On this now stands the factory of Messrs. Ransome & Co., engineers. The previous possessor was the late Mr. Edward Weeks. In 1816 this gentleman, in conjunction with Mr. Parkinson, established a nursery on the ground now occupied by Messrs. J. Weeks & Co., horticultural builders. About ten years after the firm took the strip of the King's Road between Upper Church Street and Sion Place, and here Mr. E. Weeks obtained his first patent for improvements in horticultural buildings, and what had been a nursery was converted into a large factory when he took out a second patent for apparatus by which conservatories could be readily heated through the agency of

hot water. A removal was made, however, in another ten or twelve years to the former site of Davey's nursery, nearer town, which is still held by the firm trading as J. Weeks and Co.

The Vale Nursery, a little to the west, belonging to Messrs. Tebbutt, is still in existence, but it does not cover much ground; in its rear it abuts on Chelsea Park, now cut up for building. As you turn down the lane leading to this nursery you might fancy yourself in the Chelsea of fifty years ago. There is an air of quiet about the place; a double row of Poplars casts a shade, and the houses, only slightly railed round, have grass plots and shrubberies, which give a rural aspect. The nursery itself at the end of the "Vale" looks as if it had been planned a good while since, and when I saw it, displayed in one corner some drooping Hop vines, which looked as if their (probably) venerable age was likely to close speedily; it is a plant that London smoke affects unfavourably. Vainly did I seek in Chelsea Park, fast becoming unpark-like, for any of the Mulberry trees which in 1721 some enterprising persons planted in this park with the view of initiating an English silk-producing factory. This company erected houses in which the silkworms were to be fed, and they had also looms fixed, but unfortunately financial ruin loomed in the distance, for, as Faulkner sagaciously remarks, "either the expense was precipitated too fast, or contributions did not arrive fast enough," and the Mulberry ground became Chelsea Park. Before the silk speculators had it, however, the land had been attached as a park to Wharton House.

Returning to the King's Road it should be noted that the establishment of Messrs. Weeks & Co. near Cremorne, to which I have alluded, passed from Mr. E. to Mr. J. Weeks, and about the year 1845 the latter erected the conspicuous series of buildings fronting the King's Road which is now occupied by Mr. W. Bull. Adjoining Mr. Weeks's nursery and opposite Cremorne Gardens was the nursery ground owned by Mr. Shailer, which extended some distance towards Brompton; its frontage is stated to have been from Slaidburn Street to Edith Grove. Mr. Shailer was known as an extensive cultivator of the Moss Rose. He was succeeded by Mr. Dennis. This nursery disappeared about 1860.

We now come to a noted establishment founded by a nurseryman whose name must rank high on the list of our celebrated horticulturists—viz., Mr. Joseph Knight. Before coming to Chelsea he had been engaged at Clapham, but in 1808 he purchased some acres of land at Chelsea to the west of Messrs. Weeks's establishment, and began to erect plant houses thereon, every year nearly witnessing some increase or enlargement in the buildings. In 1845 he associated with himself a nephew, Mr. Perry, and in 1853 a handsome entrance was made into the gardens from the Fulham Road, and a glazed passage enabled visitors to walk direct into the old conservatory in the King's Road. It is remarkable that this was the first nursery in which an aquarium was erected by Messrs. Gray & Ormson. The square of this tank was devoted to the Victoria Regia, the corners to the species of Nymphaea, and about 5 feet at one end to Nelumbium, Papyrus, and tall aquatic plants. Some time in 1850 this firm bought land at Battersea for Brookland's nursery, where about 12 acres were curiously laid out in square or oblong plots of uniform size. American plants were made a speciality by Messrs. Knight & Perry. It speaks well for the firm that the principals, desirous to promote intellectual improvement amongst their gardeners, had a study fitted up with books, drawing materials, and chemical apparatus. The well-known firm of Messrs. Veitch & Sons has had the establishment in their hands since 1853.—C.

NOTES AND GLEANINGS.

SOME alterations and improvements have recently been carried out in the grounds of the CRYSTAL PALACE by Mr. Thomson, with the result that a better effect has been produced while labour has been economised. The chain beds on the principal terrace have been isolated, and are thus more distinct, and mowing can be more expeditiously done now the connecting links are removed. The series of large oblong beds by the side of the south terrace walk have been turfed over, and the additional lawn is so welcome as affording relief to the preponderating masonry and broad gravel walks, that he would be a bold man who would propose that bright colours should again occupy space where repose is so greatly needed. The two large beds flanking the central flight of steps from the terrace have been planted as "arborescent beds." During

previous years these beds have been arranged as carpet beds or as succulent beds, but their position as sloping from the walk did not show the plants to advantage. They are now edged with *Euonymus radicans variegata*, with an inner line of *Erica carnea*. A series of half-circles are planted with very small plants of the different *Retinosporas*, and the centre of the beds are filled with larger plants of choice Conifers. This mode of planting will afford an agreeable change from the flower beds, which are sufficiently numerous at "the Palace."

— A VERY fine display of *PRIMULAS* is now produced in the nurseries of Messrs. James Carter & Co. at Perry Hill. The plants are grouped in upwards of a dozen varieties, the more distinct of which are the following:—Carter's Perfection, pure white flowers 2 inches in diameter and of great substance; habit of plant robust. Carter's Prize, pure white, more dwarf than the preceding variety; excellent. Fern-leaved, white; as a rule the flowers are not equal to the others. Marginata, rosy lilac, shaded and fringed with white; attractive. Village Maid, white, striped and spotted with rosy purple flowers; good. The principal dark varieties comprise Carter's Prize, deep carmine, rich colour, large flowers; robust and good. Semi-double Carmine, very effective and lasting. Carminea alba, carmine, dotted with white, and crimson centre; distinct but not so free as some others. New Scarlet, pale scarlet, large and very good; good grower. *Rosea floribunda*, rosy carmine; free and effective. Exquisite, rosy purple; good colour. *Carminata oculata*, carmine purple, crimson centre; fine spike and flowers. *Rosea superba*, rosy carmine; lively and bright. The above varieties represent an excellent strain of these popular winter flowers. The nursery now consists of nearly thirty large houses and a great number of frames. Bulbs are grown in immense numbers, and bedding and general decorative plants are extensively cultivated. To meet an expanding trade additions have been made to the "ground department," and large collections of Lilies, Irises, and Roses have been planted, besides shrubs and general nursery stock.

— A POINT of some importance in *KEEPING FLOWERS AFTER BEING CUT* is, writes an experienced gardener, to place them thinly in pure fresh water. In flattish glass baskets he has used sand and clay for keeping the flowers in position, but he finds nothing better for this purpose than small branches of *Laurustinus*, *Arbutus*, *Mignonette*, and other sprays, according to the season. In packing flowers to travel per post or rail these are placed in layers in tin boxes without any packing material. During the summer months the insides of the boxes are damped, but this is scarcely necessary at this season.

— THE most successful instance of raising *DRACÆNAS FROM SEED* that we have seen in a private establishment is in the garden of C. Seely, Esq., M.P., at Furzedown Park, Tooting. Mr. Laing by flowering and intercrossing a few plants has obtained a great number of new varieties which, although of no great value for commercial purposes owing to a richly stocked market, are yet extremely useful for home decoration. It is singular to note the striking difference of varieties of the same parentage, some of the plants having graceful slender foliage not more than half an inch broad, others medium foliage of 1 to 2 inches wide, and a few with broad robust leaves; the colours also are greatly varied, and a few of the varieties may yet "turn out something good." Seedling plants are more free in growth than plants raised from cuttings, and this mode of raising a supply of decorative plants is worthy the attention of gardeners who have a great demand for such plants. The intercrossing of any two distinct sorts is almost sure to result in a great number of varieties of decorative value.

— A PLANT, writes "R. P. B.," which is of the greatest use is *SCHIZOSTYLIS COCCINEA*. I do not intend to grow this any more in pots. By simply matting up large clumps the quantities of spikes supplied therefrom have brought the potting system into disfavour. I intend placing the clumps together this spring, and having a rough framing covered with glass prepared for their protection in succeeding winters.

— AN amateur, whom we know to be a successful cultivator, has sent us a list of thirty-six varieties of *ROSES* which he has found to succeed well near "smoky London." They are placed as near as possible in the order of merit. We publish the selection, as we frequently have inquiries relative to *Roses* suitable for planting near large towns. Charles Lefebvre, Alfred Colomb, Marie Baumann, Baronne de Rothschild, Louis Van Houtte, Mdlle. E. Verdier, Marie Finger, Comtesse d'Oxford, La France, John Hopper, Mdlle. Victor Verdier, Sénateur Vaisse, Etienne Levet, Marquise de Castellane, Xavier Olibo,

Duke of Edinburgh, Dr. Andry, Edward Morren, Mdlle. Marie Rady, Dupuy Jamain, Horace Vernet, Lord Macaulay, Pierre Notting, Paul Neyron, François Michelon, Victor Verdier, Jules Margottin, Emilie Hausburg, Prince Camille de Rohan, Ferdinand de Lesseps, Camille Bernardin, Madame Lacharme, Comtesse de Serenye, Beauty of Waltham, Capitaine Christy, and Duke of Wellington.

— WE have observed in some villa gardens in the suburbs of London that *GERANIUMS* which have not been removed from dry and sheltered borders are pushing fresh growth from the old stems, some of the young leaves being an inch in diameter. This affords evidence of the mildness of the winter, but the chances of the plants escaping destruction by the frosts of spring are exceedingly remote, as the plants in their present state succumb to even a few degrees of frost.

— THE increasing popularity of *TUBEROUS BEGONIAS* can nowhere be better appreciated than in a nursery where special attention has been devoted to their increase and culture. Mr. John Laing of the Stanstead Park Nursery, Forest Hill, has been a successful raiser of these plants, and his stock of them almost equals that of the *Phloxes*. Mr. Laing finds it of great importance that the tubers be kept moderately moist during the resting period, or they do not start freely in the spring. They are started in gentle bottom heat, and as soon as signs of growth are apparent they are carefully packed and dispatched for summer duty.

— ONE of the finest plants of *EUPHORBIA AMAZONICA* that has come under our notice is now flowering in the conservatory of Mr. B. S. Williams at Holloway. The plant is in a large pot, and is as healthy as it is floriferous. It is 4½ feet in diameter measuring through the foliage, and is supporting forty-two flower spikes containing two hundred expanded flowers and unopened buds. It is an admirably grown specimen. Two grand plants of *Imantophyllum* are also showing flowers in the same structure, and will shortly contrast effectively with the noble Palms, Tree Ferns, *Araucarias*, &c., with which they are surrounded.

— THE death, at the advanced age of eighty-three years, of the well-known Swedish botanist PROFESSOR FRIES, of the University of Upsala, is announced.

— WE regret to announce the death of Mr. JOHN KEYNES of Salisbury, which took place on Sunday last, the 17th inst., in his seventy-third year. After Mr. Lidgard's death Mr. Keynes was regarded as the senior member in the florists' ranks. He commenced his career as a florist by cultivating *Pinks*, and his friends know how ardently he prosecuted the cultivation of that and other flowers, how he surmounted obstacles that beset his path, and how he at length achieved success. He was not only a skilful cultivator and a formidable competitor in the exhibition tent, but was a successful raiser of new flowers. During the latter years of his life he devoted his attention chiefly to the cultivation of *Roses* and *Dahlias*, and florists are indebted to him for many new and splendid varieties of the last-named flower. Last year alone eight of his *Dahlias* obtained certificates—namely, Bessie Ford, Charles Wyatt, Dictator, Emulator, Marian, Robert Burns, The Countess, and Louisa Neate; and upwards of ninety other varieties of *Dahlias* of Mr. Keynes' raising are enumerated in Mr. Turner's catalogue—a noble heritage; indeed, we believe that of its kind it is unexampled. Mr. Keynes was not only held in great esteem by all florists, but was honoured by those who by close contact with him were specially able to estimate his worth, an estimate which found expression in his election to the honourable position of Mayor of Salisbury.

INSIDE VINE BORDERS.

IN your impression of February 7th a grower of two hundred Vines condemns inside Vine borders for late-keeping Grapes as Lady Downe's and Gros Colman. Having had some experience in growing late Grapes I find no difficulty whatever in keeping Lady Downe's grown in inside borders. I for years have had the management of early and late vineries, and have generally made them to shake hands as it were—that is, send the last dish of Lady Downe's to table one day, and cut Black Hamburgs the next—that is, I have had new Grapes the first week in April, and have had no difficulty in keeping Lady Downe's plump and good. At present not having Lady Downe's planted inside I have this year grown them in pots and have still some left in good condition. I have no hesitation in saying, provided the borders have sufficient water during the growing season, no

difficulty will be found in keeping Grapes until the time specified.—G. TUCKER, *The Gardens, Clock House, Putney Heath.*

CAPE HEATHS.—No. 2.

FEBRUARY.

IN commencing the cultivation of *Ericas* the first thing to secure is drainage; and as the roots of these plants cannot have any sour or stagnant matter lying about them without materially affecting their health, drainage must be thorough and effectual. As a safeguard we have frequently adopted a system of placing extra drainage in the pots, so that if the water should be poured in by any young or thoughtless person with a somewhat heavy hand no ill effects will accrue. The simple operation of draining, or, as it is commonly termed,

"crocking a pot," although of the most vital importance to the future well-being of the plant, is nevertheless not a subject which can be made interesting to the reader. Suffice it to say that about an inch deep of broken potsherds should be placed in small pots in which these plants are to be grown, the quantity increasing up to 2, 3, or 4 inches as the diameter of the pot increases; the whole should be covered with a good layer of the rough fibre which has been knocked out of the peat in preparing it for potting.

Passing from drainage we next come to soil. This should consist of good fibrous peat and sharp gritty sand, in the proportion of about three portions of the former to one of the latter, although the operator must be guided to some extent in this matter by the amount of sand naturally in the peat. As before remarked, good fibrous peat should be selected, but we do not prefer the very light fibry sort, such as is usually sought

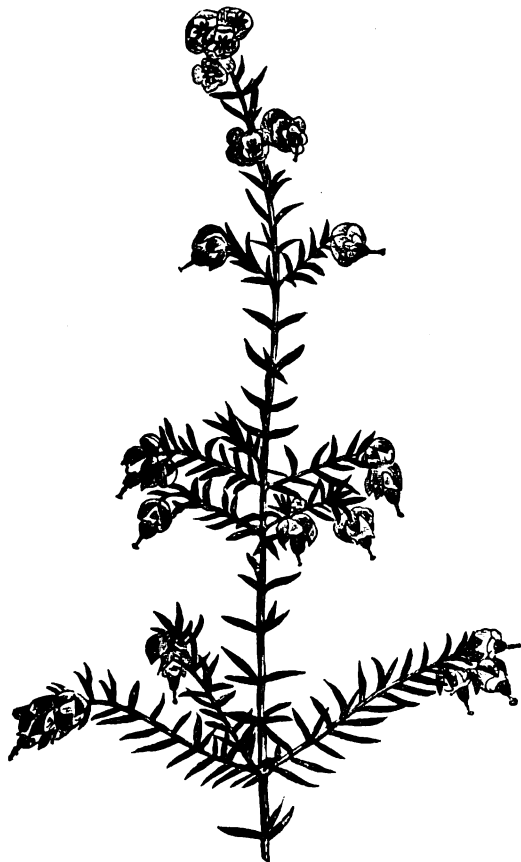


Fig. 22.—*Erica bruniades*.

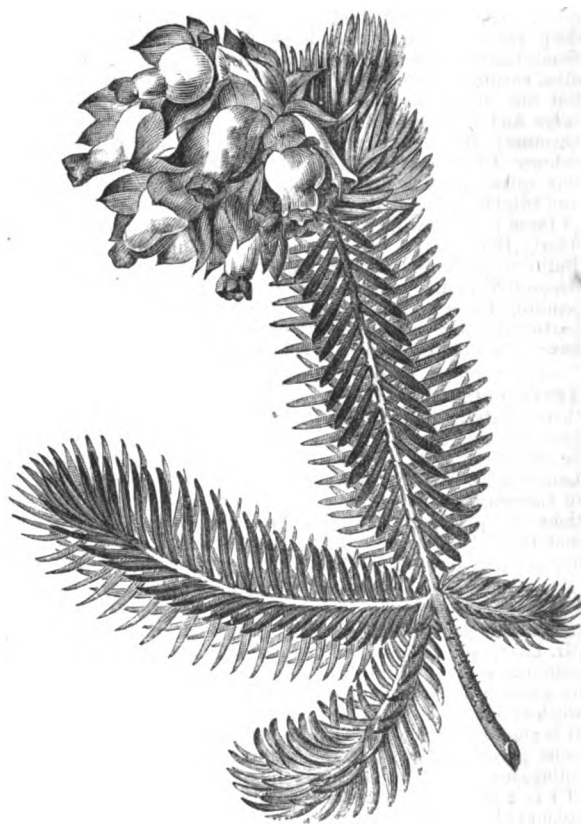


Fig. 23.—*Erica elegans*.

for by the Orchid-grower, because this is much too light; but if to this sort is added an equal quantity of a heavier kind having less fibre, then a superior compost will be obtained suitable for the cultivation of either hard or softwooded *Ericas*. In choosing a heavy peat carefully avoid a dark black kind, which becomes hard when dry, and as it decays turns to a soft sour mud; this sort of peat is, moreover, always very poor.

We dislike the use of the sieve in preparing soil, and should recommend it only to be employed in extreme cases; nevertheless, the peat must be chopped and broken up into small pieces suitable to the size of pot to be used, as ordinary common sense should teach the operator that it is quite essential to use coarser soil for a plant which is to occupy, say, a 12-inch pot, than one only 6 inches in diameter. In the case of specimen plants it will be found beneficial to mix with the compost small pieces of sandstone, charcoal, or even broken pots, as they serve to keep the soil open and porous, and thus conduct the superabundant water rapidly away, which in the case of specimens occupying the same pot for some years requires consideration; for, as the fibrous portion of the peat decays, the soil without this assistance is liable to become hard

and close, and by thus retaining the water it becomes sour, to the great detriment of health, and oftentimes speedily causing the death of the specimen.

All the *Ericas* mentioned on page 25 are still flowering, although *E. gracilis* is now getting past its best, and will soon require to be cut close back, kept a little close until breaking, and repotted for the coming winter months. A few of the best kinds now flowering are:—

E. bruniades.—This is a little gem for flowering at this season, although it does not receive the attention it deserves from the hands of either gardener or amateur. The habit is compact and branching, leaves linear-oblong; whole plant covered with long white woolly hairs. The flowers are pink with jet black prominent stamens.

E. elegans.—A distinct and handsome species, belonging to the section which can only be successfully increased by seeds. Its calyx being coloured renders it very attractive long before the bloom is expanded, and thus its period of beauty is greatly prolonged. Leaves linear-acute, densely glaucous, rendering the plant at once conspicuous from its allies. Flowers in terminal umbels of four to six. Calyx and corolla bright

rose or rosy pink, the tube being tipped with green at the apex.

E. echiniflora.—In habit of growth this plant somewhat resembles the vestita section. Leaves linear-acute, arranged in irregular whorls of five to six. Flowers produced in many-flowered terminal whorls; tube short and inflated, colour rosy-purple. It lasts long in beauty, but is not well adapted for cutting for bouquets.

E. Lambertiana rosea.—A compact-branching plant of free growth. Leaves linear-obtuse, quite smooth, and bright green.



Fig. 24.—*Erica Lambertiana rosea*.

Flowers produced near the ends of the small branches, globose, with a contracted mouth, shining white suffused with rose, glutinous. A handsome kind, which is very effective either in the plant house or when cut for bouquets.

E. scabriuscula.—A free-growing softwooded species which bears cutting well, oftentimes called an April and May bloomer; we have, however, more frequently seen it commence flowering about the end of January, and during the present month is mostly at the height of its beauty. Leaves oblong-obtuse, dark green on the upper side, paler below. Whole plant clothed with rough glandular hairs. Flowers campanulate, pure white, produced in great profusion.

E. Vernix coccinea.—This desirable and very showy plant is again finding favour with the plant-loving amateur, and it is truly quite surprising why it ever became slighted. Leaves arranged in threes, subulate, dark green above, furrowed below. Flowers produced in profusion from the points of the small branches, usually arranged in threes, and forming a long raceme; colour fiery red, glutinous and shining. Although very glutinous, flowering as it does at this early season of the year, it does not become disfigured with dust, flies, &c., which so often mar the beauty of some of the best kinds later in the year.—W. H. G.

ROSE SHOWING.

FOR the encouragement of "A LOVER OF ROSE SHOWS" I pen the following, assuming that he, like myself, has but a limited space for cultivation. I have about 40 poles of garden ground devoted to fruit, flowers, and vegetables, including about one hundred Rose trees, from which I cut a stand of twelve blooms that (after being exposed to a thunderstorm the day and night previous) took third prize at the National

Rose Show on the 4th of June last. I think I may safely say that Mr. Smallbones, the winner of the cup in the same class, has no more space, and I remember his telling me when we met at the Huntingdon Show that he had about the same number of trees as myself. I do not disbud severely, as I am able to cut a basket of Roses any day during the flowering season, and have been a successful exhibitor at provincial shows. I have written the above simply to encourage amateurs with limited space and young beginners.—D. SEWELL, *St. Neots, Hunts.*

NOTES ON VILLA AND SUBURBAN GARDENING.

FORMATION OF LAWNS.—Perhaps there is no part of a garden that attracts the attention of foreign visitors to this country so much as a well-kept and verdant lawn. The changeableness and other peculiarities of an English climate are said to have much to do with bringing about this important feature to all grounds set apart for pleasure, but notwithstanding these advantages we often find lawns after an interval of a few weeks of drought become burnt and patchy from the very fact that sufficient attention had not been paid to their formation. The work of levelling is oftentimes done too hurriedly, the soil from the hillocks is merely removed and placed in the hollows without sufficient thought being given to its settlement or the necessity for enriching the higher ground, the subsoil of which has been laid bare—both of which are fatal to the subsequent keeping of lawns in good order.

Having selected and marked-out the site for a lawn, the first step will be to ascertain the character of its natural soil. If it is of a retentive nature it will require draining, or the water will accumulate from heavy rains and remain on the surface for a considerable time. This can be avoided by laying drains, the depth of which must be regulated by the fall to be obtained. Lay common drain pipes at a sufficient depth to allow of a covering of brick-rubbish, clinkers, or burnt clay being placed over them, which will allow the rains to penetrate away as they fall, but on very light ground drains are almost unnecessary.

The process of levelling a site for a lawn is very simple and can be expeditiously done with the aid of a common spirit level and a quantity of stakes, but in very few cases is it desirable that lawns should be absolutely flat and level. The surface can be made smooth and even, while the ground in itself may be of a natural slope; raised mounds and corresponding hollows can be retained in accordance with the taste of the operator and the facilities at command, without leaving the surface either in holes or inequalities. When the surface-line has been determined take off all the highest ground and convey it to the hollow places which require filling up. This will facilitate the work of levelling during digging or trenching, which must be done all over to the depth of 18 inches, and should the ground be very light it would be advisable to trench even deeper. This increases the labour and expense, but it is of the greatest importance, and the benefit derived thereby during hot weather and prolonged droughts will more than repay the first outlay. The digging or trenching being completed the plot should be further levelled and made firm with a heavy roller. The more rolling it receives the sooner will it settle sufficiently to allow either turf to be relaid or grass seeds to be sown. Should the natural ground be very stony it will be an advantage to procure better soil and spread it all over the surface to the depth of 2 or 3 inches, raking it level with an iron-toothed rake.

After the ground has been thoroughly cleaned and become consolidated, it is then ready to be either laid down with turf cut from some fine pasture land, which will at once give a complete sward, or grass seeds of the proper mixtures which are supplied by the leading seedsmen. The laying of turf is undoubtedly the quickest way of obtaining a complete lawn, but the sowing of grass seeds is most economical at first, especially if the space intended to lay down be of a great extent. Turves for relaying are cut in lengths of 3 feet, 1 foot wide, and about an inch in thickness. As the work of cutting each turf proceeds they are rolled tight, in which position they remain until replaced in their new position. By measuring the space intended to be turved the quantity required will easily be ascertained. In the laying of turf have a quantity of planks at hand to convey them on, which will prevent the wheelbarrows from injuring the newly levelled ground. A garden line stretched tight at given intervals will point out any irregularities made by this or any other cause. Place the turves close together and well beat them with a turf beater; this helps to consolidate the whole, and afterwards the lawn should be well swept and often rolled.

The grass edges on the sides of walks should be cut with an edging-knife, and should never exceed 1 inch or 1½ inch in height, and be kept uniform throughout. A deep raw edge is very objectionable, while a low and uniform edge imparts a pleasing effect to both walks and borders.

Sowing Seeds.—The preparation of the soil for laying down with seeds is, as we have before pointed out, precisely the same as for laying the turf. Before sowing the seed the ground should be evenly raked all over, and after sowing has been accomplished it

should be again rolled and a watch kept to prevent the sparrows and other small birds from taking the seeds away before they have had time to germinate. February, March, or April are suitable months for sowing lawns. After the grass has attained the height of a few inches it will be necessary to run over it frequently with a scythe until the lawn is become fairly established. In all cases where it is found desirable to sow grass the verges should be first laid with established turf, which impart a finish to the walks and give the shape and firmness to the lawn.

Renovating Old Lawns.—After a time lawns become mossy, which weakens the grass, and sometimes weeds, such as daisies, dandelions, and plantains, will make their appearance. Such weeds may be easily eradicated by a weeding-hook; it is somewhat tedious work, but if persevered in is effectual. But for mossy lawns it is a good time from now to the end of March to rake them frequently with an iron rake in order to loosen the moss, and the more that can be removed the better. Then spread regularly all over the surface some well-decayed manure, in which cow dung forms the greatest part. Let this lie until the first week in April, when it should be raked, sowing all over the lawn Suckling Clover (*Trifolium minus*) at the rate of 12 lbs. to the acre, and if the soil is light a pound of Bird's-foot Trefoil (*Lotus corniculatus minor*) may be added. After sowing the seed rake lightly to cover it, and frequently roll with a heavy roller, and the Clover seed will soon make its appearance as thick as Cress.

WORK FOR THE WEEK.

KITCHEN GARDEN.

THE ground intended for Onions, Carrots, and other root crops should be made ready whenever the weather permits. Ground that was well manured and trenched in the autumn will only require forking over when in a suitable condition, which is when it does not clog. The forking will tend to bring the surface into proper tilth for sowing by disintegrating and loosening, which ensures its more speedy drying. Before sowing the seeds of root crops we like to give the ground a dressing of two parts of quicklime and a part each of salt, soot, and wood ashes mixed and applied broadcast at the rate of half a bushel per rod (80½ square yards), pointing it in lightly. Roots are not infrequently a succeeding crop to Celery, in which case it is preferable to trench the ground, throwing the manured parts equally through the soil, not applying any fresh manure, especially for Carrots: but for Onions, if the ground is not in good heart, well-decayed manure may be applied. Onions prefer a firm soil; indeed for those the ground can hardly be made too solid, being well trodden down before the drills are made, which should be 12 inches apart. Parsnips and Carrots do better with the soil rather firm, as they do not run to top so much when the soil is firm as when it is loose. Potatoes of the early kinds, such as Veitch's Ashleaf and Myatt's Prolific, may in light soils be planted on a south border. A row planted 1 foot from a south wall will come in early, and in such positions are readily protected from frost. Plant the tubers 6 inches deep, the rows being 2 feet apart and the sets 12 to 15 inches asunder. Sow successional crops of Peas and Broad Beans, which may now be sown in the open quarters. Lettuces wintered in frames or in seed beds in a warm situation may be transplanted now in the rich soil of a warm border. Plant Onions for seed and for affording scallions.

Forcing Department.—Maintain the supply of Asparagus, Rhubarb, and Seakale by the introduction of fresh roots, also salading such as Endive and Chicory. Sow Capsicums in a temperature of 60° to 65°, and prick off Celery in boxes of rich soil, keeping near the glass. Celery may also be pricked out in frames. Cauliflowers and Lettuces remove the lights from whenever the temperature outside is over 40°, ventilating freely at 35° externally, closing only when frosty. Carrots, Radishes, and Potatoes ventilate freely when the weather is fine, and continue to plant Potatoes in frames or pits. Sow Mustard and Cress frequently to maintain the needful supply.

Dwarf Kidney Beans.—After this period of the year we prefer growing the successional crops in beds formed either of fermenting material on which frames are placed, or in pits heated by hot water. Ten inches of good soil pressed rather firmly is provided, and drills are drawn about 8 inches deep and 15 inches apart. The seeds are placed in the drills 6 inches asunder, and pressed in the soil to a depth of 1½ inch. It is then ridge and furrow, the seed being in the latter; but as the plants grow the ridges are made level by earthing-up the plants. The surface of the bed is 2 feet to 2 feet 6 inches from the glass. The sorts named last week for pots are suitable, also Canadian Wonder, which has the finest pods of any, but it is tall-growing and should have the rows 2 feet apart. Crops grown in beds are very much more productive and longer-continued than those grown in pots, and are had also with considerably lessened labour.

HARDY FRUIT GARDEN.

The planting of fruit trees of whatever kind, whether against walls or in the open, should be completed as soon as possible. It is often advisable to replace undesirable kinds of Apples and Pears by grafting preferably to removing full-sized specimens, and

replacing them by young trees; indeed where the trees of any kind do not succeed it is desirable to head them down and graft them with such kinds as afford good returns. A healthy tree grafted will in two or three years make considerably more progress than a young tree planted at the same time. The result of grafting such healthy old stocks is generally very satisfactory. These remarks apply more particularly to standard trees. Scions of the required kinds where grafting is contemplated may be taken off and the ends inserted in the ground in a shady situation, which will retard the growth until the sap in the stocks is active. The scions should be the well-ripened growths of last year. Let all pruning, dressing of the trees for insects, nailing or tying, be concluded forthwith. Any trees infested with mussel scale or American blight may be dressed with paraffin oil, keeping it off any swollen buds.

PLEASURE GROUNDS.

Push forward all alterations, especially those necessitating removing and relaying turf and the planting or removal of deciduous trees and shrubs. Work of this kind put off until spring entails much more labour besides not being so well done, as if the spring be dry the shrubs, &c., cause considerable trouble in watering them before they are established. Lawns that have quite as much moss as grass, which may arise from a poor shallow soil or exhaustion from frequent cutting with the machine—tantamount to taking a hay crop several times in a season, will be improved by a good top-dressing. Vegetable refuse reduced to soil, mixed with a sixth part of quicklime and a tenth of wood ashes with a twentieth part soot, is an excellent compost, the whole being well mixed and sifted through a half-inch sieve before application. A moderate is preferable to a heavy dressing. Twelve cartloads are a very good dressing per acre. The lime and wood ashes will destroy the moss, which will give place to fine grass, soot being a powerful fertiliser, giving a deep green colour to the grass which is so desirable. The dressing should be spread evenly, leaving the rains to wash it in. Nothing freshens a lawn so much at the dull season as sweeping and rolling, which should be practised whenever opportunity offers. Walks, too, keep bright and clean, rolling them well especially after frost, and if dirty a sprinkling of clean gravel may be given. The pruning of deciduous trees and shrubs should be completed without delay. These trees are often much neglected by being allowed to grow into ill-shapen specimens and irregular outlines; a timely attention to removing such branches as cross each other, cutting out old stunted growth and cutting back irregularities, will rectify this. The work must, however, be done judiciously. Trees and shrubs recently removed are the better if mulched over the roots with decayed leaves and any vegetable refuse that is in a partially decayed state; it facilitates the formation of roots by maintaining a more uniform moisture. Secure the stems thoroughly to stakes, nothing being so fatal to the trees rooting as allowing the heads to be blown to and fro by winds.

FRUIT HOUSES.

Vines.—Pay strict attention to stopping the shoots in the early houses. Every shoot allowed to grow a foot and then reduced to a few inches only first promotes and then suddenly retards root-action, giving a check to the Vines, which is not an unfrequent cause of shanking at a later period. Avoid, therefore, such a practice, but rather stop the growths frequently, which is equally necessary to prevent overcrowding of the foliage. Tying down the shoots should also be frequently and carefully attended to, as when they are allowed to grow considerably before they are secured to the wires there is much danger of their snapping off at their junction with the old wood. Proceed with thinning in the earliest houses. No well-defined rule can be laid down for thinning Grapes, as the different varieties vary much in form and size of bunch and berry. Young and very vigorous Vines produce loose bunches, which require very little thinning but considerable tying-out of the shoulders, and old Vines give close compact bunches, necessitating rather severe thinning to secure large berries. All shy-setting Grapes, such as Muscats, require great caution in thinning. It must be done very sparingly at first until it is seen by the fertilised berries taking the lead which to remove. Avoid cold draughts, which are more certain to cause rust than other too-often-accused causes, such as handling, rubbing with the hair, steam from water arising from heated surfaces, and sulphuring hot-water pipes, which are all best avoided; but rust we find usually follows the admission of cold dry air to the viney. Disbud and tie down in the succession house. The Vines started early in January will be in a forward state, especially Hamburgs, but if there are Muscats in the house they will only be showing fruit. Hamburgs not infrequently produce tendrils only, and Muscats become "deaf" and curl up. This arises mostly from imperfectly ripened wood and sometimes from a too low temperature; advance, therefore, the temperature to 60° at night, falling to 55° in the morning of severe weather, with 55° to 70° by day, increasing to 80° from sun heat, maintaining a moist genial atmosphere, ventilating moderately in bright but cold weather. If any Vines are breaking irregularly, or at the top only, depress the rods until the whole of the shoots are 2 inches long, and then secure the rods in their proper positions. The

fruit should be cleared from late houses without delay, pruning and dressing the Vines as previously advised, affording them a season of rest by keeping the house as cool as possible.

Peaches and Nectarines.—Attention must be paid to tying-in the shoots as they advance and to syringing, so as to keep red spider in check. Weak liquid manure may be given to the roots after the fruit is the size of small marbles. Take care that the roots do not suffer by want of moisture, as they too often do from the surface of the soil looking moist from syringing whilst the soil below is too dry. The night temperature may now be 65° to 60°, falling to 55° in the morning in severe weather, and 70° to 75° by day with sun. Proceed with disbudding in the second house, and in the case of the fruit setting very thickly remove some of the smaller, badly placed, and that on the under side of the branches. Syringe morning and evening after the fruit is set to clear away the remnants of the blossom and to keep down insects. If aphid appear fumigate with tobacco moderately, having the foliage dry, but the floors, &c., well damped. Discontinue syringing in the house started early in the month when the blossoms are expanding, sprinkling the floors, &c., in bright weather morning and afternoon, leaving a little air on constantly. Temperature 55° to 50° at night, or 5° lower in the morning in severe weather, and 55° by day from fire heat, advancing to 65° with sun and air.

Figs.—Those in pots started early will require syringing twice daily and due watering at the roots, which must not be allowed to lack moisture. Admit air at 70°, advancing to 80°, the night temperature being 60°, 5° lower in the morning in severe weather, and 65° by day from fire heat. Those planted out will be making growths, which may be pinched if strong at the fifth or sixth leaf, but it is not necessary to do this unless very vigorous. The terminal shoots may be trained in their full length, and the shoots which issue from the base of the terminals pinch at the fourth or fifth leaf. Avoid overcrowding by judiciously thinning the shoots.

Melons.—The plants will now be growing apace, and will be ready to plant out shortly. Early Melons do well in a low span-roofed house of about 10 feet internal width, which admits of a 3-feet pathway and a bed on each side. Two rows of hot-water pipes will be required for each bed for bottom heat, and one running all round the house by the front walls, with one on each side of the path for top heat. The pipes in the bed should be covered with brickbats or rubble 6 inches deep—unless they be enclosed in a chamber, when it is not necessary to employ rubble to surround and cover the pipes—and over the rubble place a layer of turves, grass side downwards, and then the soil, which should consist of mellow and rather heavy turfy loam, and be raised in hillocks or ridges 18 inches to 2 feet wide and 8 inches deep, and well rammed down. Keep the plants near the glass, stopping the shoots when they have grown about two-thirds the extent of the allotted space. Bottom heat 80° to 85°, top heat 70° to 75° by day, rising to 85° with sun and moderate ventilation, and 70° to 65° at night. As slugs, &c., are not infrequently brought in with the soil, draw a circle around the stems with soot and lime, both in a dry state. It will not only serve to keep depredatory vermin at bay, but will absorb moisture from the stem and prevent decay at the collar. Make up a bed of well-sweetened dung and leaves preparatory to planting in early March, keeping the plants intended for that purpose near the glass and shifted into larger pots or top-dressed, as inactive roots rarely take to fresh soil freely.

PLANT HOUSES.

Greenhouse.—Young stock of hardwooded plants, such as *Boronia serrulata*, *Pimeleas*, *Epacris*, *Gompholobium*, *Correas*, &c., should be potted so soon as their roots become active. Good fibrous peat is the best material, with an admixture of about a sixth of silver sand. The best peat for these plants is that which contains but little sand, being of a richer kind than the sandy peat, which is more suited to the hardwooded Heaths. In potting merely remove the crocks and loosen the sides of the ball slightly. The roots must not be reduced, and any that are very much pot-bound should only have a small shift; healthy plants may have a shift of 3 to 4 inches. Drain the pots well and ram the soil with a stick very firm, and keep the neck of the plants level with the rim of the pot and sloping from it to the sides, where it should be about an inch lower than the rim. See that the ball is thoroughly moist before potting, watering carefully for a time after potting. Any large plants in small pots may now be shifted into larger, especially such as *Eriostemon*, *Hedera*, *Leschenaultia*, &c. They will flower better and the operation is more safe than when deferred until after flowering.

Camellias, if the weather be bright and the roof is not partially shaded by climbers, will after this require shade if the bloom be intended to be of some duration and the colour good. Slight shade only is necessary. *C. Bealii* is perhaps the best late red, and *C. candidissima* the best late white; but we have *fimbriata* and *alba plena* until the end of April. The plants should have copious supplies of water, and a damper atmosphere is desirable, as the increased sun heat dries the atmosphere, causing short duration of bloom, and not infrequently a dropping bud. Early-flowered plants may be encouraged to grow by placing them in a moister atmosphere and temperature of 55° at night, rising 10° to

15°, shading from bright sun. There are few plants that bear heading down so well as *Camellias*. Any overgrown or straggling plants may be cut hard back, and if kept moist and in an increased temperature will break freely. They will not, however, flower well next winter, therefore a portion of the plants only at a time should be operated on. Any straggling strong growths on vigorous plants may be shortened back, in order to keep the plants presentable in form.

Epacris going out of flower, also winter-flowering Heaths, should have the flowers, or rather the seed-pods, picked off. Plants of these intended for early flowering may be kept rather dry for a few days, and then be cut back and placed in gentle heat to encourage growth. *Vallotas* very much pot-bound may have a shift into larger pots or have the bulbs divided. They do well in turfy loam with a little well-decayed manure, and are best under rather than overpotted. They require a light airy situation.

Pelargoniums of the Show class will, as the pots fill with roots, require more water; it must not, however, be excessive, which promotes the "spot," while if under-watered the foliage turns yellow. Fancy varieties must be carefully watered; they do not as a rule require so much water as the stronger-growing class. See to regulating the shoots and stopping for successional bloom, keeping the plants near the glass and well ventilated, insects, particularly aphid, being promptly met by fumigation.

Shift into larger pots *Calceolarias* that are now growing freely, and those showing for bloom assist with weak liquid manure. Vigorous plants not showing flower may have a shift from a 5-inch pot to an 8 or 10-inch; but plants in 7-inch pots are more useful for decorative purposes. Weak liquid manure will materially assist *Zonal Pelargoniums* having the pots filled with roots and advanced for flowering, also those in a flowering state, also *Cinerarias*, *Primulas*, *Cyclamens*, &c. Sow *Cyclamen* seed in brick moist heat, also *Cinerarias* for early winter flowering.

TO CORRESPONDENTS.

ERICA VAGANS (*Richmond*).—You cannot do better than pot your plant in a compost of good fibry peat (not black bog nor spongy peat) and a liberal admixture of clean silver sand. Be careful that your plant is neither overwet nor overdry at the time of potting. Drain the pot well by placing in it an inch or two of crocks, on which place some clean fibre, which can be shaken from the peat, to prevent the particles of soil choking the drainage. Pot very firmly, not filling the pot too full of soil, but leave space to hold water sufficient to penetrate the whole mass of soil. When you apply water let it be copiously, but do not give any until the soil is sufficiently dry to crumble when pressed with the fingers; if it is pesty the plant will not require water. Firm potting and careful watering are important points to be attended to. This *Erica* is a native of the heaths of Cornwall.

PRIMULAS (*W. W. B.*).—The rosy purple variety is extremely fine, one of the best we have seen. The whites are pure, but slightly deficient in substance. The carmine or pale scarlet variety is very distinct on account of its dark foliage, which is of the same colour as that of *Dell's Best*; the flowers are also good. By judicious fertilisation you will establish a strain of considerable value.

GOLDEN CHICKWEED (*G. R.*).—Apply to the leading London florists. Any of them could obtain it.

GASLIGHT IN CONSERVATORY (*G. R.*).—If the plan you mention conveys through a tube all the fumes from the burning gas into the open air outside, it will not injure the plants.

OUTSIDE BLINDS (*R. Hyslop*).—Light canvas will suit for making outside blinds for your conservatory. For affording a slight shade tiffany is suitable, but is not stout enough to be attached to a roller to be moved up and down frequently. The "Exotic Fern Manual" is not being printed.

CUCUMBER AND MELON PIT (*York*).—Full directions are in our "Garden Manual," price 1s. 6d.

HEATING A SMALL STOVE (*A Subscriber*).—Your little stove, containing some 700 cubic feet of air, should have 35 feet of 4-inch piping, or say three lengths of 11 feet, to enable you to keep a winter temperature of 70° to 80° with ease and economy. This temperature might be maintained with two lengths of piping, but not without much risk in severe weather, for such small glazed structures are necessarily more subject to external influences than large houses. A liberal amount of piping involves an extra outlay in the first instance, but as certainly points to subsequent economy of fuel. A flow and return pipe through or rather under the bed will afford ample bottom heat. Let your boiler be in a shed at the back of the stove close to the partition, so that you may take a pipe from it into the intermediate house, where a couple of lengths—just a flow and return—will be quite sufficient. You will require three valves, all of which should be in the stoker's and not in the houses: one to control the stove bottom heat, another for the upper pipes, and one for the intermediate house. These valves to be put on the flow pipes as near the boiler as possible in order to economise heat.

ALTERNANTHERAS (*M. T. L.*).—Any florist could supply you with them now.

LILIUM AURATUM (*H. Roose*).—The vermin on the bulbs you describe are wireworms. We should take up the bulbs, clear away all the soil from them, and replant them in soil not infested by wireworms. To promote the flowering of *Epiphyllum* the plants require to make strong growth during the summer by being potted in good soil and watered liberally, withholding the water in September and keeping the plants comparatively dry for two months.

GERMINATING POWER OF SEED (*C. S.*).—Of the vegetable seeds which you bought four years ago, *Pans* may be depended upon to grow fairly well, but none of the varieties of seeds will give plants equal in vigour to those from new seed. Radish will grow, and so will Spinach, Capsicum, Lettuce, Cucumber, Melon, Tomato, Cauliflower, Broccoli, Cabbage, Savoy, Brussels

Sprouts, and all other sorts of winter Greens, Mustard and Cress, Endive, Beet, Celery, Watercress, Ramplon, Fennel, Chicory, Corn Salad, Basil, Artichoke, Broad Beans, Carrot, Vegetable Marrow. Other vegetables are doubtful, so are flower seeds, and in the vegetables selected a broad margin must be allowed for failures and weakly plants. To avoid failure and disappointment sow immediately a pinch of each kind of seed in separate pots, which place upon a brisk hotbed, and all seed still retaining vitality will germinate in a few days.

HOT-WATER PIPING—GENERAL HINTS FOR AN AMATEUR'S VINERY (W. E. B.).—As we do not advise early forcing or a high winter temperature for such a small house, a flow and return pipe along both sides and one end of the house will suffice. Your Black Hamburgh will answer admirably for the roof, and a couple of Camellias will suffice as permanent occupants for the back wall, with four more to be kept in pots and trained upon the wall till its space is required for the permanent plants. Here are six good sorts—Zoraida Vanzi, Princess Mary, Fimbriata, Lavinia Maggi, Lavinia Maggi rosea, Elvira Bianchini. Your zonal Pelargoniums will make the house gay throughout winter, and you should have a few Cinerarias and Primula sinensis raised from seed sown in March, three or four Cyclamen persicum, at least one of the large white Carnation Souvenir de la Malmaison, and three or four Azaleas, such as Queen of Roses, Roi d'Hollande, Eveline, and A. Borsig. Tomatoes may be grown very well in pots in such a house for a year or two, but after the interior becomes shaded by the Grape Vine they will not answer so well. Sow the seed in March, pot the plants singly, and repot them as required, employing plenty of drainage and a rough rich soil, for the Tomato requires a generous diet, and can hardly be overwatered after the pots become full of roots. After the fruit is set and begins swelling substitute liquid manure for water entirely. The fruiting pots should be from 8 inches to a foot in diameter. One plant only in a pot.

SEEDS FROM THE NEILGHERRY HILLS (A Very Old Subscriber).—We cannot spare the space which would be required. Consult "The Cottage Gardener's Dictionary."

POULTRY TRESPASSING (S. F.).—You must not poison nor shoot the poultry. Your legal mode of proceeding is to give your neighbour a written notice that if his poultry trespass on your garden you will sue him for the damage they do. If they continue to trespass proceed against him in the County Court.

INSECT (T. S., Exeter).—It is the common garden mite, *Acarus hortensis*.

NAMES OF FRUITS (W. H. Ashwin).—5, Cluster Golden Pippin.

NAME OF PLANT (J. Atfield).—It is *Lonicera fragrantissima*. The Savoy sent is extremely curious, and will be submitted to the Scientific Committee of the Royal Horticultural Society.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

THE CULTIVATION OF BARLEY.

THE price of wheat having taken a lower range for some years past, and the strong probability of its being imported as one of the principal products of other countries, barley is now becoming one of the chief agricultural products of the kingdom, chiefly on account of the favourable soil and climate of a large portion of this country; and it is also very encouraging to the farmer, in consequence of the high price of malting barley, to study how to obtain a first-rate sample where there is so large a difference as 12s. or 15s. per quarter between malting and grinding samples.

Barley may certainly be considered as one of our most valuable grain products, not only on account of its supplying an useful and nutritious beverage to a large portion of our population, but also as being next to wheat the most valuable of the farmers' grain produce upon a considerable portion of the land of this kingdom; but the description of land best suited to it is that which consists chiefly of a sandy, chalky, or gravelly composition. All such light soils are recognised by farmers in general as kind barley land; nevertheless, we have found that it is cultivated upon almost every description of land in the country with varying results, though to grow it in perfection upon different soils a variety of modes of preparing the land is necessary, and also such rotations of cropping as are proved to be best adapted to the soil, having due regard to situation and aspect. In preparing any land for barley we should always keep one object in view, that of obtaining a full crop, as it must be recollected that many of the charges upon the land—such as rent, tithes, and poor rates—are the same whether we obtain a good or bad crop, and it too often happens that farmers fall short in their preparation for a full crop more from a deficiency in the outlay of capital and liberality in cultivation than from any want of knowledge of their business. Whenever the barley crop is attempted upon land naturally wet underdraining should be thoroughly performed before the seed is sown, for barley, above all kinds of grain, delights in a dry warm soil. Due regard should also be had to remove all couch grass and weeds of every kind, as the growth of such is sure to prove

a serious drawback upon the crop, and unless the land is fresh in chalk such weeds are sure to prevail, chalk having also the favourable effect of making the soil lighter, more porous, and freer to work. It is not usual in a four-course rotation to manure for this crop in a direct manner, nor will it be found desirable that the land should be very rich or highly dressed, otherwise more straw will be produced than will be conducive to the yield of grain, inasmuch as when barley is laid or lodged there is no crop suffers so much depreciation either in quantity or quality, but more especially the latter, for instead of fetching the best price for malting purposes it will be merely fit for grinding or distilling. The only exception which can be made to the foregoing observations is in the case of many kinds of shallow, poor, dry soils, for upon such land it would be almost impossible to over-manure or dress too highly, as in the majority of seasons an overburden of straw would not be produced.

We do not advise barley being sown oftener than once in four years, which is strictly in accordance with the Norfolk or four-course rotation—viz., first year roots, second barley, third clover, fourth wheat. This system no doubt is well adapted to good barley soils, yet it would not be advisable to sow the crop oftener upon the richest and most fertile soils, as they can be, and usually are, occupied by more valuable crops, such as—first year wheat, second beans, third wheat; or the following:—first year turnips, second wheat and dreg, third clover, fourth wheat. An exception to the rule of sowing barley only once in four years has come within our knowledge in the case of parties who are in the habit upon sandy loam soil of sowing barley after potatoes, and so on alternately, and this course pays well, the barley proving generally a good crop of malting quality; but it must be remembered that this exception in barley cultivation only applies to land in the highest state of improvement, the plan adopted being to dress heavily for potatoes, and either a light dressing or no manure for the barley. As parties who have adopted this mode of culture continue it, it is fair to infer that in particular cases it answers their purpose; and although it must be regarded as a divergence from the ordinary rules of cultivation, and not often tolerated in farm leases, yet to those who have full control of the land on a home farm it may be resorted to as equally justifiable as it is to sow barley after wheat, which upon some soils where it does not grow kindly after root crops is almost the only place in the rotation where it can be profitably introduced. The rotation alluded to is—first year turnips, second wheat, third barley, fourth clover. The practice for a long period has been very general to sow barley after turnips fed off by sheep upon all dry soils in almost every county in England, but we must observe that in our own management, and also in large districts of loamy soils that have come under our notice, barley after turnips fed off on the land is anything but a remunerative crop, as it grows very irregularly, some parts being very luxuriant, and often lodged in the grass state before coming into ear, other parts being very deficient, owing to the heading of the stock in wet weather. But it may be asked, If the barley crop suffers so much from this system upon the mixed or varying soils, why pursue it? The usual reply is that sheep must be kept, they being the rent-payers on the farm; but in many cases this idea is giving place to a plan whereby a portion of the roots are pulled away for cattle at the homestead and supplying the sheep with cake or corn whilst feeding off the roots, but the general effect of either system of feeding roots on the land is to render the crop of barley a very precarious one. Under particular circumstances, however, which render it desirable to continue the barley crop, a counteraction of high tillage will be found in the following plan:—Plough once only after feeding off the roots, but plough deep enough to bring up a little fresh earth, and sow a reduced quantity of seed at the earliest period the land can be made to work freely. It is a successful method of cultivating for barley upon good dry loams after a crop of potatoes, the rotation being—first year potatoes, second barley, third clover, fourth wheat, and this is certainly one of the best preparations upon loamy and mixed soils. It is, however, desirable that the

land should be cultivated by steam power or otherwise in the autumn after the wheat crop in preparation for potatoes, particularly as the early sorts are most successful in avoiding the disease. This course of cropping will be found especially advantageous upon all land subject to couch grass, or more than usually liable to the growth of weeds. Plenty of opportunities are offered for cleaning and preparing the ground after the potato crop is off, and the winter fallow succeeding reduces the land into a remarkably kind state to receive the seed at a very early period, which is so essential in obtaining a malting sample.

It is scarcely necessary to be named, were it not that many inconsistencies in cultivation are continued and considered by numerous farmers essential to the success of the system of preparing the land after root-feeding, in which we consider they are not borne out. For instance, in preparing the land it is a common practice to plough two or three times, with sundry harrowings and rollings after the roots are fed off, which we consider cannot be required for the success of the crop; for although the treading of the sheep in feeding off turns upon all light and dry soils may be deemed essential in consolidating the land and enabling it to retain the manure and to withstand the drought of summer, yet it cannot be said to require repeated ploughings, &c., the effect of which is calculated to increase the expense of tillage, delay the time of sowing, and in a dry season the barley may only partially vegetate, and the produce in consequence will be deficient, being also edge-grown and quite unfit for malting. The clover seeds when sown amongst the barley often do not vegetate and suffer from the same cause; it will, moreover, be found in a favourable season too encouraging to the growth of straw, the land being already in a sufficiently fertile state, produced by the usual cultivation for turnips. Instead of these repeated ploughings we have found it the best plan to wait until the land is sufficiently dry to work freely, then plough once, and should the weather be inclined to be harsh and dry the land should be worked immediately after ploughing and not later than the following day, otherwise light land will become too dry, and strong soils will harden and be rendered incapable of being reduced to a fine tilth so essential in the cultivation of barley.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—There is no more busy time for the horses than the present during the whole year. Ploughing for beans, peas, oats, and barley will now be going on, also drilling and harrowing in due course. The nature and condition of the soil will influence to a certain extent which crop shall be first put in. Long days—that is, working the horses until nearly dark, is sometimes necessary when the work is much in arrear; but we find the teammen sometimes objecting to work with the horses beyond the usual hours of labour. In order to meet this objection we often take a labourer to do some of the work properly belonging to the teammen, such as cutting-out hay, bringing in straw to stables for litter, preparing swedes or carrots, &c., for when this work is done for them we do not often find the teammen unwilling to continue the horse labour for some hours beyond the customary time. But in order to meet this demand of extra labour from the horses they should be kept in high condition, and more especially should they have a moderate allowance of roots, besides corn and chaff; and in some seasons extra labour contributed by the horses proves exceedingly valuable, and, in fact, is the only means of bringing up arrears of work.

Hand Labour.—Hedging, banking, &c., being now nearly concluded, grubbing may now be commenced; and it is very desirable on some farms that various fences should be removed, as it is not well to trust the sheep without hurdles in feeding either in summer or winter time, and many changes occur which make it advantageous to grub up fences, such as draining, for when the land is properly drained the ditches may be drained also, and the banks thrown down. We have on our own occupation grubbed some miles of fencing, gaining the land, saving expense of trimming hedges, saving also the repairs of gates and pales, and being able to lay the land out for ploughing in long reaches without the usual short work, and at the same time saving long distances for cartage of dung, and also corn and hay at harvest, without being obliged to take a circuitous route to reach the gateways between fields. Men should now be employed, if not already done, in preparing ground to receive cabbage seeds, &c., and if it is not provided for in a large garden, or in a garden attached to the estate to which the home farm belongs, by the land being already dug and tilled ready for the seed, it should be done off-hand, the sooner the better, as we do not like to defer the sowing seed to raise plants for setting out on the farm after this time, because it often happens that the first sunny weather which occurs brings out the turnip fly, which carries off the young plants, and an accident or mistake of this sort cannot always be rectified in the same season, and necessitates the purchase of plants instead of growing them. It is also essential that the land should be well prepared, and if done in the previous autumn so much the better; but it sometimes occurs that, however well prepared the ground

may be, the plants will not come on healthy and sound at root if the land is deficient in chalk or lime, and if plants are grown under such circumstances they are sure never to thrive when planted out, for many of them will club at root; therefore before sowing the seed let it be well understood whether the ground is fresh in chalk, if not chalk or lime at the time of seeding is the only safe remedy to obtain healthy plants. The seeds may be drilled with the small hand drill at about 14 inches apart, and the sorts of cabbage we prefer are the Ox-heart, the Champion Cattle cabbage, and the Drumhead savy; they give an excellent succession for cattle and sheep feeding. The Ox-heart we find the best early cabbage for cattle, as they come very quickly of good size and grow without many outside and wasteful leaves. Women's labour will still be required in various directions on the farm; in fact we always find that it is well to look forward and find employment for them regularly, seeing that so much of the lightest farm work at present wages to men cannot be profitably done by them, nor the farm and premises be kept tidy and decent without being very costly.

SEASONABLE AGRICULTURAL NOTES.

THE preparation of such land for barley as I named on page 117 is very much economised by not delaying a day after the land will carry the horses. Presuming that some attempt has been made to sow it with wheat in the autumn it will have been harrowed down; if so, so much the worse. How and when the land is fit for the horses' feet is a very nice point to decide. Some say he succeeds the best who keeps off strong wet land the longest. From years of experience I find a week of dry weather is sufficient when the season is well advanced to make the difference between a damp condition of plastic clay and a free and friable mould. When the soil will bear treading and will then crumble in the hand, then at once is the time to plough such land over again, presuming its previous crop had been anything but clover. If the latter, waiting yet awhile and then employing the chiseled-tooth harrow, is found in practice better than ploughing. Good stout young active horses, good ploughs, and good ploughmen are the desiderata for such land.

When land is well done and well worked it is half way to a good crop. The ploughing of such land must not be delayed a day. The frosts which follow soon put all right. The great secret for barley is a friable mould underneath, never mind a few rough clods on the surface. After the frost and when the land is again dry enough the chiseled-tooth harrow on wheels—that made by Ashton of Horncastle—is the best, as it can be regulated to a proper depth, for this purpose. The seeding will go on in its season; we are now only anticipating that, though short, distant time.

Depend upon it to carry on farming successfully now all things must be of the best and most approved principles—ploughs, harrows, drills, horse hoes, scarifiers, &c., accomplish work now in such a manner that would astonish our fathers. At all events, if the improvements of the past twenty-five years have not prevented farming from collapsing altogether in this country, they have to some extent been the means of maintaining the balance between the farmer's income and his serious losses of the same years. Successful farming consists in adopting all the available means which observation has placed at our disposal for increasing production and lessening the cost. The proper thing at the proper time is as essential as the showers of April and sunshine of May. The chain must be perfect; no patchwork or delay. The simple matter of ploughing being neglected at its proper time, began of when too late, is at the least the very reverse at which I wish to aim at. Nothing must be left to chance. A master's eye, his presence, and daily superintendence of the different avocations of the farm works wonders.

There is yet another place where barley is often well and profitably grown. In our four-field course, on land in good tilth, free from twitch, and in good heart, a crop of barley is taken after wheat, which is followed by turnips. In this case we will suppose it is either loam or good light land. Nothing more is requisite for such than crossing with the plough during February. Some people say it is best not crossed with the plough, but by either drag, cultivator, or wheeled harrow. Such a "cross crop," as it is called, would be all the better for having a dressing at sowing time of 1 cwt. of good Peruvian guano and 1 cwt. of nitrate of soda, and as seeds are not sown with this crop a cwt. or two of common agricultural salt might be added. In practice we find this crop of barley requires about one peck of seed less per acre than on heavy land. The strong land ought to be sown when it will work, but the seeding of it should be thicker than on good barley soils. As seed time arrives I will state when we in Lincolnshire begin, and the different quantities we find the most suitable for the varying soils of our county. Another item of great import is the change of seed from different climates. The different varieties also should engage the attention of the farmer more than they have hitherto done. The old Yorkshire Long Ear and Thanet barleys were popular a quarter of a century ago, but they have disappeared, and perhaps Hallet's Pedigree now rules the day.

All points considered it is perhaps the best for all good barley soils, but more of this hereafter.—*RUSTICUS, Lincoln.*

LANGSHAN FOWLS.

THE *Journal of Horticulture* of January 24th contains a notice of the Jardin d'Acclimation du Bois de Boulogne. The writer amongst other places speaks of a visit to the poulaillerie, where he saw a Langshan cock which he admired but could not tell whence it came. I am in a position to state that the Langshans in the gardens were procured from the yards of the late Major Croad in 1876, and that their importer has been awarded the Society's medal for their introduction into France. I am glad to hear the Langshan bears confinement well, for it is a most lovely bird and loves a free range. If your correspondent will be at the pains to visit some of the yards where the Langshan is kept in England I am sure he will have the gratification of seeing some magnificent specimens of this useful breed. Classes are now being arranged for them at the various shows, and I may add Mr. Buchan of Southampton lately won the first prize at Dorchester with a fine pair of birds.—*A. C. CROAD, Manor House, Durrington, Worthing.*

THE PRESENT ASPECT OF THE PIGEON FANCY.

I READ last week in "our Journal" a very striking and interesting article on "The Present Aspect of Poultry Showing," by "C." I must also say something as to the Pigeon-showing and Pigeon fancy of the present time. First let me remark, and with much pleasure, that I do not believe there ever were in England so many good fancy Pigeons as at the present time. Where twenty years ago there were a dozen, now there are a hundred. Then go further back—another ten years. Why, there are now a hundred good Pigeons where thirty years ago there were but five—if even five. This increase in good birds has, I fully allow, been caused very much by shows. Here is the good work they have done: they have strengthened or created a taste, and created also a trade. Then also the varieties of the birds are now known very generally. One no longer hears absurdly ignorant remarks at shows by those passing past the pens, as to what "the funny birds" are, &c. All this I willingly and gladly allow as to the past benefit of exhibitions.

At the present time the state of things in regard to Pigeon shows is this:—Although the novelty is gone, they, I think, are more attractive to ladies than poultry shows. There is no annoying crowing. They are also perfectly clean birds, and no nose, even the most delicate, is offended; also naturally they are far prettier birds, and more attractive to the casual and partly indifferent visitor or non-fancier; also their weight is little, and hence the cost of their carriage is far less than that of fowls, to say nothing of huge Geese and more huge Turkeys. All these things are in their favour; but a few exhibitors have risen, giants to all the rest, and to them as a rule the prizes have gone, hence the smaller fanciers have become discouraged. Indeed, I may exclude almost the word fancier from some great breeders and exhibitors of fancy Pigeons, who have "gone into them" as a business, just as another man goes into farming—the profit, not the fancy, being the consideration. Such great and supremely successful exhibitors have injured shows by discouraging others, although far from having injured them in another sense, for their birds have been better worth looking at than any others; still they prevent others sending their birds. Then, too, there is another reason—a painful one. The trimming, dressing-up, colouring, &c., have prevented strictly conscientious or less able makers-up of show Pigeons from exhibiting. A great deal of wrong-doing has been no doubt going on. Even books in which these tricks have been mentioned have served to deter honest people, who not unnaturally feel "what is the use of my competing in such company? my birds shall only be honestly shown, and I know that so shown they cannot win." Deceptive dealing has had an injurious effect, puffing-up birds in cheap advertisements as "of the best strains in England," "sure winners," &c., when really they were mere rubbish. I can only make one excuse for such advertisers; possibly they might not know what are really good birds, though I fear usually it is mere dishonest puffing. But if there is the deceptive seller, there is also that objectionable person the crafty-minded purchaser, who pleading youth or poverty implores you to sell him good birds at a very cheap price; or sometimes it is said "not for exhibition," and then comes the after-letter confessing that they were for exhibition, and complaining that they are not good enough. Then, too, there is the crafty-minded purchaser who sets a trap to catch some green vendor, possibly the vendor being a clergyman or a lady, and therefore supposed to be of a decided green tint. The applicant begins by stating that he wishes for "birds fit for the highest competition," giving all particulars to eyes, beak, colour, &c.; then he ends with an appeal to the supposed greenness of the seller to let him have them very cheap, as he is an ardent or a young (doubtful this!) fancier, or some other plea. Such letters vex fanciers who have

birds that have cost them a large sum of money, and who naturally and properly wish to sell them or their produce without loss.

Well, next what do I recommend as to the future? If poultry shows are not to be held in places where they were formerly, why should not Pigeons and cage birds form a show? I think this combination would be both popular and suitable. Hold poultry shows if you can, or fowls and cats, but when committees shrink any longer from venturing upon poultry I would say, Let them try Pigeons and cage birds. Why should not such a show be tried in Bristol? for hundreds, of ladies especially, keep or admire cage birds who know nothing of poultry.

In another article I shall hope to prove that, after all, shows are not absolutely essential to the maintenance and culture of fancy Pigeons. Glad should I have been if poultry and Pigeon shows could have gone on and prospered; but we must now, to a degree at least, make a change of front. I specially invite fanciers to write their opinions on this subject.—*WILTSHIRE RECTOR.*

THE POULTRY CLUB.

WE announced last week that the original members of the new Poultry Club are about to be elected. We wish the Club all success, and are sure that it may do a really good work if only fanciers in general are public-spirited enough to sink any individual crotchets or supposed interests, and to unite to rid their hobby of a certain opprobrium, which, whether justly or unjustly has—there is no denying it—begun of late to be cast upon it. For those of our readers who may not have followed the scheme from the beginning we will give a short sketch of its origin.

For some time past the system of trimming or improving birds (or call it what you may) for show purposes has certainly been on the increase. Most honourable men had often observed to us that in certain varieties it was impossible to win with birds shown in their natural state, and that so they had been obliged, in the phraseology of the day, to "follow the times," and embellish their birds in a way they did not at heart approve of. One or two flagrant cases of trimming were exposed at the Crystal Palace and elsewhere. In some of them the judges were not so eager as might have been wished to expose the fraud; in others, when they were willing to do so, they complained that committees were too short-sightedly timid to back them up, or had their schedules so badly worded as not to warrant a prize being withheld. Accounts, naturally much exaggerated, of the rogueries practised in poultry-fancying appeared in newspapers not generally devoted to such subjects, and it was at once seen by upright exhibitors that something must be done, or they might feel constrained to give up their hobby as having become a medium of fraud. Some combined action was necessary, but how to combine was the question. Our contemporary *The Live Stock Journal* invited discussion on the question, and a large number of letters appeared in his columns, most of them, as is usual in such cases, more full of righteous indignation than practical suggestions. Eventually the difficulty of a beginning was surmounted in a way we think sensible. A few fanciers above suspicion of interested motives last spring drew up a list of some fifteen names, most carefully selected as representative fanciers, to form a preliminary or organising Committee. Their chief duty was to discover how far the general feeling of poultry fanciers was in favour of attempting a club to remedy some of these abuses. It must be remembered that one or two such societies had been hurriedly started and had failed, and this had to be taken into consideration. This Committee was certainly not chargeable with any undue haste, for various circumstances, chiefly the difficulty of meeting in the summer months, retarded their labours, and no practical steps towards the formation of the Club were taken till the autumn.

Meanwhile we learn a large number of fanciers had signified their earnest desire to belong to such a society. A general meeting was held at the Crystal Palace during the show week, and the subject was discussed in its various bearings. Warnings were given by Mr. Tegetmeier and other experienced fanciers based on former failures, still those present seemed determined, as the Chairman (the Hon. and Rev. F. G. Dutton) well expressed it, to have another try. The meeting formally appointed a Committee to draw up a code of rules, almost identical with the Committee already informally appointed, and adjourned to Birmingham. There a scheme of rules drawn up with considerable care was, after much discussion and amendment, carried, as well as several resolutions. So scrupulous were the Committee about seeming a self-constituted body, although they had been regularly appointed at the Crystal Palace, that they only agreed to elect, as a safeguard, the original members, which they will do on the 26th of this month, and then resolved to retire, leaving the elected members to elect their own permanent officers and committee. So much about the constitution of the Club, which we must say seems to have been devised in a very careful and scrupulous, though perhaps in a somewhat cumbersome manner. Every precaution has been taken that the Society should be as general as possible, and unconnected with any newspaper or party, so that if ever it should become cliqueish fanciers in general will only have themselves to blame for it. All the members who subscribe

a guinea a-year will have a vote in the election of its officers and committee, who in turn will elect future members, while those who subscribe but 5s. will have the general privilege of members but not this vote.

We now come to the important part—viz., the objects and action of the Club when fully constituted. We confess that we see considerable difficulties in store for it, partially from its objects being misunderstood and partially from the great tact which will in the nature of things be necessary to carry them out. It is no business of ours to instruct its future executive, still we may with propriety point out one or two lines which we think it may with advantage take, and indicate the difficulties of which it must steer clear.

1. Trimming is one of the dishonourable practices which it must combat, and the question at once comes in, "What is trimming?" Well, the dubbing of Game cocks has always been allowed, is recognised by all judges, and (*pace* the Society for the Prevention of Cruelty to Animals) has a humane object. This we take for granted will be allowed. Then it has long been considered legitimate to shave the faces of Spanish. This we think an objectionable practice, and as novices were great losers by it; still our best judges sometimes disqualify Spanish as "over-trimmed," and thereby implicitly sanction some trimming. This will be a question, How far may any improvement of this kind be looked upon as a legitimate embellishment like the grooming of a horse and thinning its mane? Polish again have, we understand, the front of their tufts frequently pulled out. This we consider cruel and should vote against it. Hamburg cocks have their combs carved about. No sort of defence can be urged for this practice, and birds with gross hereditary faults may so be palmed off upon an ignoramus as perfect specimens. However, the whole matter will doubtless be discussed with the greatest and most honourable authorities on each breed, and the opinions of the most experienced judges would of course be asked as to where the line can be best and most effectually drawn, while their experience will make it more easy for them to say.

2. This question being decided, there will of course follow the difficulty of carrying out the decision. Much must be left to moral influence, and we have lately been gratified by several personal assurances from some eminent exhibitors that though they had in a measure gone with the tide and permitted or practised minor embellishments of their show birds, they will now that the Club is formed scrupulously discontinue them. Assuredly the Club should in all cases back up disqualifications made by judges, but must, of course, in visiting fraud with censure, discover as far as possible how far the exhibitor is really culpable. It has often happened that an innocent person has bought a trimmed bird, shown it in ignorance and been disqualified. Every means should be taken by the Club to expose all connected with such transactions, and so to track out the original offender.

3. If such a course be fearlessly and judiciously carried out we feel certain that many committees will be only too glad to place themselves under the patronage of the Club, and so relieve themselves of some of the responsibility of exposing frauds. If they do so honest exhibitors will patronise them, and we know well that there are many breeders of first-class poultry who are only deterred from becoming exhibitors by fear of the tricks connected with exhibitions. Thus in time the Club might become a court of appeal, to which disputed points could be referred. At all events it will be able to subsidise well-managed shows and such as honourably carry out its recommendations.

4. As a Club for mutual protection there will be many ways in which it may aid its members. Nearly every fancier of standing has had some difficulties to which he has yielded from dislike as an individual to risk defeat or loss, but when, if backed up by such a body, he might have gained his rights. The extortionate charges of railway companies might be reduced, or at least brought to a more uniform and consistent tariff, if an energetically conducted and largely supported club were to hold out threats of patronising particular lines where there is an alternative. Defaulting committees too (though we trust to hear of no more such bodies) would hardly defy the action of a club as that of Portsmouth defied a succession of individuals who prosecuted. Such are some of the lines, very roughly sketched, on which we think the Club may usefully work, and we wish it all success in its honourable object.—C.

NATIONAL PERISTERONIC SOCIETY.

THE PRESIDENT'S ADDRESS.—SUBJECT: PATHOLOGY OF PIGEONS.

IN seeking a subject for my inaugural address as President of this Society, I have carefully considered the matter with the view of choosing one that would be most interesting and beneficial to the majority of the members, and for various reasons I have thought it best to adopt that of the pathology of the bird. I do not intend to detain you with a lengthy paper, nor to describe the culture of the bird—a subject that has been fully and ably laid before you on previous occasions. I may, however, mention with regard to a breed that I made my speciality for years, that during what I may call the rage for shows some years ago the

divergence of opinion was so great amongst judges and fanciers that I deemed it advisable to make known what experience had taught me as to the standard or type of Dragon Pigeon to be desired, and I published my views. These did not, however, receive any recognition so far as I am aware.

I will now proceed to explain, in as clear a manner as I am able, the causes, symptoms, and treatment of the diseases of the bird, more especially of the respiratory organs, as observed by me during the many years I possessed a large stud. I will first describe catarrh—that is, cold and sore throat. The symptoms of this affection, which is more prevalent in the autumn and moulting season than at other times, are perhaps familiar to you all, but may be defined as follows:—A chilliness will be present, as well as cough and sneezing. The mouth will be open, and a discharge of mucus of an adhesive character takes place from the nostrils, mouth, and throat, in some cases almost filling the same, especially when acute disease of the parts occur, and signs of diphtheria are displayed. As a remedy I have given the following composition:—1 drachm of cayenne pepper, 2 drachms of powdered gentian root, and $\frac{1}{2}$ drachm of grey powder, with sufficient soft soap to give it consistency. This I divide into small pills, one being given night and morning. These will be found beneficial in checked or heavy moults. A small pinch of salt, powdered nitre, or saltpetre should be administered twice a day. In the latter stages glycerine may be used with benefit, to which in bad cases a small portion of belladonna may be added. When diphtheria (which can be detected by the faecal or disagreeable smell from the parts) is present, or large external swellings take place on or about the throat, place a piece of wadding previously immersed in cold water round the throat, keeping it in its place by means of a piece of linen sewn over it. No hard food should be given at these times. Eggs boiled with milk or arrowroot rubbed through a fine sieve I would recommend, and this may be given by means of a small indiarubber bottle as used for diffusing insect powder. No attempt should be made to remove hard substances from the parts in the early stages of the attack.

I now come to bronchitis. This complaint may be recognised by the feathers of the bird being ruffled, a depressed and general uncomfortable appearance, cough, increased action of the heart and breathing, accompanied by abnormal sounds, such as wheezing, rattling in the throat, &c., which are audible at some distance. Birds suffering from this disease are frequently found moping in a corner of their loft, or, to use a homely but expressive phrase, all in a heap, and become emaciated in a few days. For treatment I would recommend one cayenne pill daily, also the careful introduction into the larynx and trachea of a soft tail feather, dipped one day in spirits of turpentine, and the next in weak salt and water. This may be continued for three or four days. I have found the following pills very beneficial in some cases:—Assa-fetida $1\frac{1}{2}$ grain, ginger 1 grain, and sulphur 1 grain, mixed with soft soap or treacle and given twice a day. Binioidide of mercury ointment in a mild form should be applied over the surface of the ribs under the wing where there is a scarcity of feathers, and repeated if necessary. Cod-liver oil capsules may afterwards be had recourse to with advantage.

Next I will describe pneumonitis, or inflammation of the lungs, the characteristics of which are rigour or shivering fits, loss of appetite, increase and difficulty in breathing, and a similarity to the symptoms described in bronchitis, though of a more severe nature. The treatment I adopt in these cases is to place 2 drachms of nitrate of potash or saltpetre in a pint of water for the drinking fountain, or $\frac{1}{2}$ drachm of tincture of aconite to a quart of water may be substituted for this purpose. Pills containing $\frac{1}{2}$ grain belladonna extract, $\frac{1}{2}$ grain camphor, and $\frac{1}{2}$ grain carbonate of ammonia, divided into four, I administer twice a day. Binioidide of mercury ointment in a mild form may also be applied over the surface of the ribs, as recommended in bronchitis, and repeated for three or four days. In the course of a few days a cod-liver oil capsule may be given at night, or, what is preferable, one of Mr. Betty's tonic capsules. This disease is occasionally associated with scrofula, and causes the obliteration of the lung structure through its becoming firm and of a cheesy nature, differing from a purely inflammatory deposit in its uniform white colour and in its freedom from any blood-colouring matter as well as in the defined condition of its limits of extension. It is produced by hereditary predisposition, unhealthy habitations, and other causes. There are other diseases known amongst us only too well, one of which (inflammation) attacks the eye or eyes with severity, and often runs its course to the detriment and danger of the sufferer, and not unfrequently terminates in destruction or an unfavourable fungoid growth. The method I have found successful has been to give the following in a pill, according to the size of the bird:—Aloes two to four grains, ginger one grain, hydrargyrum cum creta or grey powder half a grain to a grain, and sufficient treacle to give consistency. A piece of wadding soaked in cold water should be placed on the eye and kept in its position by a piece of linen sewn over it. This prevents the bird bruising the part either with its claw or by rubbing it on the body, which must be avoided. After a few days, when the swelling has subsided, a lotion of black wash may be applied by means of a very soft feather carefully passed

over the organ once a-day. I have applied a weak solution of nitrate of silver in the same way, but this requires greater care. This disease, no matter what is done to prevent it, will at times extend and envelope the eye and its surrounding tissues as well as the bones of the orbit.

The ear is subject to an affection of a tedious nature termed canker, which is, I consider, of a scrofulous form, and requires great care and perseverance in its treatment. I would first recommend the administration of a purgative. The one I prefer is a compound aloes pill as before described. This purgative may be repeated occasionally if deemed necessary. Clean out the mucus with warm water and inject a solution of sugar of lead composed of three grains to an ounce of water, which should be warm to prevent as far as possible any shock or extra irritation. This may be continued for a few days, and then substituted by a solution of sulphate of zinc of equal strength, and applied in the same way. A very weak solution of carbolic acid may at times be used. I have frequently introduced into the ear at night a piece of wadding soaked in cold water, covering it with a dry piece and removing it in the morning, finding this give relief by softening the discharge.

Another disease that the Pigeon is very subject to is rheumatism and gout in the joints, more particularly in the wings, legs, and feet. This most frequently occurs at moulting time, through cold and inclement weather. The practice I have followed in these cases has been to give a compound aloes pill two or three times a week, at night; and in the morning following a cayenne pill. Bi-carbonate of potash or carbonate of magnesia introduced into the drinking water in the proportion of one drachm to a pint of water is attended with good effect in correcting the acidity in the blood and in its tendency to remove the deposits. The application of biniodide of mercury ointment to the joints affected, or the passing of a seton through the skin over the parts by means of a needle and piece of worsted, are methods I can recommend. In all cases the birds should be removed to some place distant from the loft, and be kept free from draughts and damp.

Before concluding my list of diseases I must not omit to mention one that at times affects our feathered friends—viz., meagrim. This is an affection of the brain arising from a derangement of the digestive organs produced by irregular and over-feeding, also by want of water. The symptoms are giddiness and stupor, in which they move round in a staggering manner with their heads inverted, the latter being caused probably by an effusion in the ventricle of the brain on the opposite side to which the head is inclined. These cases usually terminate fatally, but may sometimes be successfully treated as follows.—In the early stages by the administration of castor oil or compound aloes pills until the bowels are relieved. When the crops have been distended I have had recourse to opening them with a knife and removing the contents, with good results. This should be done on the upper part, between the shoulder and neck, care being taken to sew up the opening with a needle and silk. Pills composed of half a grain carbonate of ammonia, quarter of a grain camphor, and one grain of carbonate of soda, divided into eight, may subsequently be given two or three times a day as the case may require. A seton inserted under the skin only, across the back of the head, in the hollow space between the bones of the neck will prove useful, as will also some form of blister. Refrigerating applications (ice, ether, &c.) to the head in the early stages have a tendency to relieve.

With regard to hygiene, I would offer a few suggestions.—In the first place, a dry loft, well ventilated in the roof to allow of the escape of noxious vapours, and protected on the north-east side, should be secured. Great care should be taken at the moulting season to protect the birds from cold or inclement weather, as these are, in my opinion the causes of the greater number of the ailments to which the birds are subject. With regard to birds that are confined in lofts, I would strongly recommend a plentiful supply of grit, as without this the digestive organs become impaired and disease is the consequence. At breeding times carbonates and phosphates, such as are contained in oyster shells and old mortar, are indispensable for the proper formation of the shell. With regard to diet, I recommend, as the result of my experience, a good supply of vegetable (cooked or otherwise), and soft food such as bread, &c., once a day. This I consider necessary, as the exclusive use of hard food produces disease of the digestive organs and generally impaired health. I also recommend an occasional change of diet; peas or Indian corn soaked in water for three days and given moderately being useful in this respect. As a general food I have found tares the best. In the moulting season benefit will be derived from the introduction of carbonate of magnesia into the drinking water in the proportion of 1 drachm to a pint of water. A change of habitation of the birds, especially in the very sensitive ones, such as Carriers, frequently gives them an indisposition to feed, and unless steps are taken to remedy this, disease and atrophy will be the consequence. In such cases I have made a practice of feeding them myself at night, and for this purpose have used the soaked grain.

I have now, gentlemen, come to the end of my remarks, and have to thank you very much for your kind attention.

THE ALEXANDRA PALACE CAGE BIRD SHOW.

THE birds were shown in the conservatory, the best department of the Palace, with some good permanent aviaries in it and some passable plants. The cages were well arranged all on one level, and their occupants looked comfortable, for the temperature was pleasant and even, and there seemed no draughts. First came fifteen classes for Norwich Canaries, every one of them well filled, and in many of them nearly every bird was worthy of a notice. Norwich Canaries are always the favourites of the general public, their soft round form is so attractive. We thought the class for Evenly-marked Yellows about the best. It is amusing to listen to the exclamations of wonderment from visitors at the colour of the cayenne-pepper-fed birds, so utterly is it beyond anything conceived fifteen years ago in brilliance; in fact, this system of feeding has worked a perfect revolution in Canary-showing, for we now find special classes for birds not cayenne-fed. The class for amateurs' birds which have never won a prize was a very creditable one, and that for Yellow Norwich with dark crests very attractive. Belgians, the London Fancy, Lizards, and Yorkshire, were all well represented.

The ten classes for Mules were most interesting. First came the Yellow Goldfinch Mules, almost like Canaries with the red Goldfinch head, then the soft and pretty Buff Goldfinch Mules. The Dark Yellow Goldfinch Mules, little known save to fanciers, are very handsome, rich in colour like burnished copper. The Linnet Mules are less attractive. Last in the list of Mules came a class for mule birds neither of whose parents are Canaries. The first-prize bird in this class was a cross between a Goldfinch and Grey Linnet. We much preferred the second-prize bird—a lovely specimen of a Goldfinch and Bullfinch Mule—combining some of the beauties of both parents, most sprightly and elegant in motion. The peculiar Lancashire Coppies were rather good than numerous. British birds had many classes; that for Bullfinches was particularly good. Curious White and Pied Blackbirds, White Starlings, a Hawfinch, and a Black Bullfinch were the chief attractions of the variety class of British birds.

The foreign classes were by no means so well filled as the British. The first-prize Red-headed Cardinal was a singularly fine one. Only three pairs of Waxbills appeared, the winners being respectively Orange-checked and Orange-breasted. The Java Sparrows were all white. A pretty pair of Madagascar Love Birds were "too late." The Australian Parakeets were very beautiful, first being a Pennant's Parakeet of glorious blue and crimson hues; second a crimson-headed one, we fancy a Rose-bill. The class for "Any other variety" of foreign birds was perhaps the most attractive. The most remarkable entries in it struck us as being the second-prize Indian Bee-eater, the same exhibitor's Scarlet Madagascar Finch, and an exquisite pair of "Buetic Parakeets," shown by Mr. Groom. They well deserve their name, and are of the most delicate pink, blue, or grey hues. There were nearly one hundred entries in the Selling class, and nearly all seemed sold, as were a large number of Canaries in the general classes. Everyone can keep a bird, and such a show near the great metropolis gives a capital chance to buyers to suit their taste.

The attractions of the Show were added to by some "faked" Greenfinches lent by the proprietor of *Land and Water*. They certainly were embellished in a most artistic manner with strange parti-coloured pendant head-dresses, still it would be indeed a green fancier alone who could be taken in by such Greenfinches. We have, however, seen birds in the bird shops on the quay at Marseilles not unlike them. Hard by was a pretty automaton singing bird. We were not fortunate enough to hear it sing, but remember having seen and heard a similar one at the Exhibition of 1862.

VARIETIES.

COLONEL KING's farm on the Rio Grande, says an American paper, consists of 160,000 acres, all fenced. He has been growing in wealth since the war with Mexico, and now owns besides the land 20,000 horses, 80,000 cows, 75,000 sheep, and 80,000 mules. He employs 300 Mexicans as herders. Most of his land has been fenced in at an enormous cost. He despises "book learning," but has become well educated in the ways of the world. He lives extravagantly, and is literally "monarch of all he surveys."

It is not the quality of food, says a writer in the *Chamber of Agriculture Journal*, put into the stomach which fattens cattle, but that which is thoroughly digested and assimilated. When animals are in a state of rest, and consuming food so mixed, with water constantly before them, they take very little of the water unless the more nutritious food superadded be of a heating nature—as pea or bean meal—in too large a proportion; the safest practice is to combine crushed linseed with all these articles. Such consideration leads us to doubt the expediency of making the chief food of fattening animals stuff of which eight or nine-tenths consist of water, and more especially if unmixed with more solid food. The setting before a bullock half a hundredweight of cold roots the first thing in the morning, some hours afterwards their

allowance of more solid and nutritious food, and repeating the feed of roots in the evening, must be an irrational proceeding; while, on the other hand, a due admixture of the solid and fluid foods will probably aid the proper digestion of each.

— A CAREFUL experimenter, states *The American Cultivator*: reports that he fed two pigs, which at six weeks old were within a few ounces of the same weight, as follows:—One on skim milk with bran and oatmeal, and the other on an equal abundance of rich kitchen wash of unlimited quantity. The pigs were killed on the same day when just four months old; that fed on the wash weighing 48 lbs., the one on skim milk a little over 40 lbs. The meat of the former appeared very fine to the eye, but when roasted was coarse and greasy to the palate; while the other, though very fat, was extremely delicate both in flesh and flavour.

— LET it not be forgotten, says *The Agricultural Gazette*, that a small quantity of cake from the commencement of grazing not only economises roots but is conducive to the health of the animals, and gives additional nitrogen to the manure, without which we cannot expect to obtain an increased yield of corn. At the present moment cakes are relatively cheaper than other feeding stuffs. In fattening cattle we recommend mixing linseed cake with common cotton or decorticated. We should go in for raising all the meat we possibly can. But few come to grief who well stock their farms with good cattle, and let us not be frightened by that American bugbear, but rest assured that when the trade and commerce of England revive the world's importations will not prevent our home-fed meat from reaching a higher figure than it has yet seen.

— THE time to feed milch cows well is, says a good authority, during the whole winter, and if possible the animals should be made to gain in flesh if not already in good condition. Thus kept cows will nourish properly the coming calf, will have strength to undergo the strain on the system during calving, and will generally recover quickly; milk will be secreted naturally, and will increase until the flow reaches the full capacity of the animal, and continue so during its natural flow. With proper shelter the animal waste is reduced to the lowest point and profits show the largest. If we so feed as simply to supply the daily animal waste there is nothing left for milk. The entire food has been consumed in supplying heat, and the owner has not only worked for nothing, but loses the feed given.

— "H. C." WRITES as follows, in reply to a correspondent on chloroforming bees:—Tilt the hive slightly and run one teaspoonful of chloroform into the entrance, and immediately stop up the hole with tow or rag. As soon as the humming ceases operation can commence.

WINTERING BEES.

WITH reference to the above subject Mr. Pettigrew calls in question the correctness of my statement, "If cold is so prejudicial to bees how comes it that power is given them to resist the intense frosts of the fearful winters of Russia and North America with impunity?" and adds, "Is not this a mere assumption? Do bees bear these winters with impunity? If they do, where shall we find the evidence?" Every bee-tree in the backwoods of Canada is a standing proof that they survive without the slightest artificial aid; if they did not, as a matter of course they would entirely disappear. I am well aware of the pains American bee-keepers are at to ventilate and winter their bees successfully, besides those out of doors, in houses and cellars, but not by keeping them warm as recommended by Mr. Pettigrew, wrapping them up with carpets and sheepskins. On the contrary his own authority, Mr. Quinby if I mistake not, affords the freest ventilation by taking out the house windows, removing the floor boards, and leaving the hives inverted quite open. I cannot say I join with Mr. Pettigrew in his admiration of Mr. Quinby's "great merit" as an apiarian writer, but at the same time I must confess it has struck me as singular that Mr. Pettigrew should cling to some of his crudest of theories, even after Mr. Quinby had abandoned them himself as untenable. Your correspondent as I expected remembered perfectly the terrible frost of the morning of 24th December 1860, and narrates, "That frost killed more than three-fourths of the bees and hives in the north of England. That frost doomed thousands of hives to extinction. The country was nearly swept clean out of living bees by the cold of that night." Now it so happened that although the thermometer sank with us to several degrees below zero on that memorable morning, the ten colonies composing my garden apiary never came through any winter in finer order, and why? Because that externally as well as internally were thoroughly dry, confirmatory of the opinion I started with, that it is not cold but damp that kills. The fearful mortality described by your correspondent is easily accounted for at such a temperature when one pictures to the mind's eye the too common neglected style of the cottage apiary, with its dank damp-soaked straw skeps through the dilapidated straw hackles or old bag or carpet saturated coverings, entirely preventing the escape of the condensed internal vapours, as with the descending thermometer our poor little favourites die hard in their efforts to keep up the temperature.

That distinguished American apiarian Rev. L. L. Langstroth, a strenuous advocate for winter ventilation, writing on the 30th January, 1857, says:—"This month has been the coldest on record for more than fifty years. My hives have been exposed to a temperature of 80° below zero. . . . No. 1 was again examined, and the bees found in good condition. The central comb was almost filled with sealed brood nearly mature, all the combs were free from mould, and the interior of the hive was dry," and on the same page the same apiarian adds, "Mr. E. T. Sturtevant, of East Cleveland, Ohio, so widely known as an experienced apiarian, in a letter to me thus gives his experience in wintering bees in the open air: 'No extremity of cold that we ever have in this climate will injure bees if their breath is allowed to pass off, so that they are dry. I never lost a good stock that was dry and had plenty of honey.' He goes on to narrate how that in the winter of 1855-6 he had twenty stocks standing in a row. 'One was a hive suspended 20 inches from the ground and without any bottom board. The chamber for surplus honey boxes was open to the north, and had eight one-inch holes all uncovered.'" Not to encumber space, suffice it to say that the nineteen hives all perished through the severity of the winter, while the one remaining open and exposed came out strong and healthy.

To take a case nearer home, a bee-keeping friend in a neighbouring county wrote me so lately as the 9th inst. deploring the loss of a favourite hive as follows:—"I must blame myself for the death by following out Mr. Pettigrew's plan of coddling. Three weeks ago about one-third of the bees were dead, and fearing the rest would succumb I shifted its mouth from the opening in the window sill and heaped on woollen cloths. Yesterday being a fine day all were dead but about fifty, which were all damp."

Mr. Pettigrew, while commenting on my observations on runaway swarms preferring to take up their quarters in the coldest or north aspect of our own and neighbour's roof while all other aspects were alike open to their choice, does not doubt the "truth" of my remarks, but thinks it "a mere fancy" on my part of the bees so coming to enjoy "the most thorough and undisturbed dormancy with the consequent minimum consumption of store;" but the fact remains that they did so come, and in no case to people empty comb, and even if they had would only go to prove they inherited the like predilection for such exposure as preceding generations. I might have added that at the same exposure they also enjoyed the maximum shade during the working season. Summer suns never roasted out my garret tenants to swarm, nor winter's blinks heated the slates to bring them forth to drop at a lower temperature than 50°, the evils of which I notice Mr. Pettigrew, in common with all adherents to the "warm" theory, suffer to their cost.—A RENFREWSHIRE BEE-KEEPER.

THE INTRODUCTION OF THE LIGURIAN OR ITALIAN BEE INTO ENGLAND AND GERMANY.

THE following account of the introduction of the Italian bee into Germany from the pen of Dr. Dzierzon, on the occasion of the twenty-fifth anniversary, which occurred on the 12th inst., having been translated from the *Bienenzeitung* by my friend Mr. Henry Dieck, I thought it of sufficient interest to claim a place in your columns, more especially as the notice of bee-keepers in this country was first drawn to this variety of bee through the medium of your Journal nearly nineteen years since.

Many of the readers of "our Journal" may recollect a notice which appeared on the 19th July, 1859, announcing that a new kind of bee had been offered to British bee-keepers, signed "H. T.," and inserted by my friend the late Mr. Henry Taylor, author of "The Bee-keeper's Manual," and contributed to the pages of this Journal. This was an extract from a letter addressed by M. Hermann of Switzerland to my firm, and attracted the attention of your able correspondent the late Mr. Woodbury, who immediately sent to the address given for a queen. Thus a new era in bee-keeping was commenced in England. Bearing in mind this interesting circumstance, it occurred to me that the opinion of the great apiarian of the good qualities of the Italian bee after an experience of a quarter of a century might very appropriately appear in the *Journal of Horticulture*.—ALFRED NEIGHBOUR, 140, Regent Street, London.

THE TWENTY-FIFTH ANNIVERSARY OF THE INTRODUCTION OF THE ITALIAN BEES.

"I had been practising bee-keeping for about twenty years, and had written my first work on bees, entitled 'Theory and Practice,' without being aware of the existence, in addition to our common grey or black bee, of other races and varieties of the honey bee of quite a different colour. I certainly knew from the *Bienenzeitung* of the peculiarity of the heather bee to make preparations for swarming by breeding drones in hives in which there is a young queen hatched in the same year, while the common bees never do; and I had also read in Virgil while yet a student that there were two kinds of bee kings, those shining like gold, and others of a dark colour and an inactive disposition, the latter being compared by the poet to a fatigued traveller who goes along

labouring through the dust. This description, however, I looked upon rather as a poetic licence, and thought it applicable to young queens of generally a bright colour with frequently rather yellow rings, and to old queens mostly of quite a dark colour. When, however, I had become acquainted with the Italian bee by actual observation, it was quite clear to me that the poet when describing the two kinds of bees had in his mind the two varieties of bees—viz., the golden yellow one and the common grey or black bee, which are both met with in Italy at the present day, and to the former of which he decidedly gave the preference.

"The introduction of the Italian bee into Germany has been quite an event in the history of native bee-keeping. If I am not mistaken, I was told by Von Hruschka that a monumental stone had been placed in the apiary of Mr. Prolius of Mira, on the spot which had been occupied by the hive that was sent to Silesia. But if this event appears worthy to be celebrated by the senders of the bees, how much more important ought it to appear to the receivers. At the beginning of the present year just a quarter of a century had passed since this memorable event, which certainly deserves to be kept in mind and to be specially mentioned in a prominent place of the organ of German bee-keepers. I will first give the history of the introduction of the Italian bee, and then mention the consequences of its introduction—the influence it has had on theory and practice.

"The first information of the existence of a differently coloured bee in several parts of Upper Italy I obtained from an article in the *Bienenzeitung* by our great bee friend, Capt. Conrad Von Balenstein of Chur in Switzerland. He related how during the campaigns in Italy he had become acquainted with a bee with bright yellow rings on the abdomen, how it proved to be an excellent means of deciding many a question respecting the propagation of bees which at that time was doubtful, and how on his return home he had a stock of yellow bees brought to his apiary from beyond the Alps. From that time the Italian bees occupied my thoughts, and I meditated on the ways and means of obtaining possession of such a colony. In the beginning of the year 1853 my ardent wish was fulfilled in a manner which will be described in a future issue."

NEW EDITION.

The Apiary: or Bees, Bee Hives, and Bee Culture. By ALFRED NEIGHBOUR. London: 1878.

HAVING spoken approvingly of former editions of this work we need only make the following extract from the preface—"The present issue of our handbook may be fairly said to be really a new work. Not that the greater portion of it has been consecutively rewritten, nor yet that the larger half of the former matter has wholly disappeared; but the additions of entirely new sections and half-sections, the transpositions with a view to facilitating reference, the erasures of what is either out of date or only repetition—in short, the thorough overhauling of the text from beginning to end—are such as to render the form in which it is now presented a new book rather than an ordinary fresh edition."

OUR LETTER BOX.

SPANISH, MINORCA, AND ANDALUSIAN FOWLS (H. S. S.).—They are described in our "Poultry Book for the Many." The book you name can be had in sixpenny numbers.

BIRD HOARSE (Bird Fancier).—It is usually caused by the bird's cage hanging in a draught, sudden changes of temperature, or a damp aviary. We have found great advantage by putting some tar in the water from which they drink, which has quite cured some cases if taken early, and before the lungs become seriously affected. Bread and milk, and plenty of chickweed and groundsel, are also beneficial. One gentleman strongly recommends the use of rice water as a cure for asthma in Canaries.

FOWLS LOSING FEATHERS (Constant Subscriber).—We expect the feathers do not drop, but are pulled out by the other birds. It is a very common thing with fowls in confinement, but we have never known it happen with birds at liberty. It is a sign the secretions are at fault. Either the food they get is wrong, or they are debarred from something they require. We think your feeding likely to cause it. Indian corn is a capital help, but fowls fed on it entirely become excessively fat, and that induces disease of all sorts, among others a distaste for food. If at large they would find the natural remedy. In confinement they take that which most resembles it—viz., feathers. They will strip each other; but as the practice generally originates with one or two birds you must watch, and when you see one picking another remove her. Your feeding is bad; have your barley ground, it will pay for grinding. Give barleymeal or ground oats morning and evening, maize or table scraps at the mid-day meal. If they have no access to grass let them have large sods cut with plenty of fresh earth and thrown into their runs. Give neither rice nor middlings. It is impossible to say how much sixty fowls should consume unless everything is known about their runs and their opportunities of getting food. We have had Langshans, but could not discover they were in any way superior to ordinary breeds. In appearance they are, we think, inferior to most.

WEAK HIVES (Apis).—The sooner you unite the bees of your two hives the better, for they are beginning to breed. The way we unite bees at the present time is very simple and successful. Both lots of bees are sprinkled with good warm syrup well minted at sunset. The doors of the hives are closed and all taken into a room or hothouse and left there for an hour or two. The syrup makes them both merry and noisy. The hive of which the bees are to be surrendered is lifted off the board perpendicularly 2 or 3 feet and brought on it with a great thump, causing almost every bee to fall on the board. The other hive is lifted off its own board and placed over them.

This is but the work of a minute of time, done in candlelight, and as soon as it is done we pick up the candle and leave the bees to themselves to arrange the terms of union and goodwill. Hundreds of hives have been united by us thus in winter and spring without a single case of failure. If all the bees are not shaken out by the first thump they are cast out in front of the united bees by another attempt, and they soon are attracted to the hive by the noise. Next morning before daylight they are placed on their stand in the garden. Your idea of placing the one weak hive on the other is not a good or safe one. In the work of uniting swarms it is desirable to kill the oldest queen, and this is easily done in autumn when we have daylight; but in candlelight it is very difficult to see a queen in a swarm, however small, and is rather dangerous to search for the queen in candlelight, as the bees fly and crawl towards the light.—A. P.

DESERTED HIVE (Henry Coy).—If the combs of your deserted hive are young—built last year, you may put a swarm in it at the swarming season. If the combs are dark-coloured and old a swarm will do better in an empty hive than amongst them. By using empty hives we are certain that swarms begin their career with good constitutions and free from disease of any kind. If the weather become unfavourable for comb-building the administration of 2 or 3 lbs. of sugar will enable them to build some pure virgin combs. Old combs should never be used for supering.

BEE STINGS (F. J.).—"B. & W." says that his bees are always at war with him. He adds, "I have never been able to conquer their antipathy, so I take good care to quiet their nerves with a dose of smoke, and to protect myself before I do anything among them. I fear you must do the same; yet my old friend Mr. Woodbury could do anything with his own bees, whereas in attempting to deal with mine he was stung, which looks as if it were possible to accustom them to the presence of their owner and his manipulation; but I suffer so much from irritation after being stung that I have come firmly to believe, at least in my case, that discretion is the better part of valour."

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.				IN THE DAY.						Relat.
1878. Feb.	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass		
We. 13	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Th. 14	29.923	47.5	47.3	W.	38.0	51.6	35.1	70.1	29.8	0.410	
Fri. 15	29.801	49.0	48.1	S.	40.3	50.0	44.5	51.5	30.2	0.138	
Sat. 16	30.085	41.8	41.8	S.	40.9	51.1	54.5	65.0	30.2	0.052	
Sun. 17	30.295	40.5	45.0	S.	41.6	53.3	41.3	81.4	33.8	—	
Sun. 17	30.232	40.8	47.4	S.E.	44.0	59.7	46.3	83.3	43.9	0.080	
Mo. 18	30.110	47.0	45.3	W.N.W.	44.0	55.0	46.8	96.3	47.5	—	
Tu. 19	30.453	38.6	38.6	W.	45.0	50.0	35.8	67.5	30.3	—	
Means	30.128	45.7	44.8		41.7	53.0	40.6	75.0	35.8	0.630	

REMARKS.

- 13th.—Dull damp morning; brighter with a little sunshine in afternoon; fine but damp in evening.
 14th.—Very wet morning; fine in afternoon and evening; very dark for about five minutes at 4 P.M.
 15th.—Damp morning but fair; rain commenced 1.30 P.M.; fine moonlight evening.
 16th.—Dull and damp in early morning; after 10 A.M. fine and sunny; rather cloudy in afternoon; drizzling rain in evening.
 17th.—Beautiful day, bright sunshine, and quite spring-like; moonlight night.
 18th.—Another bright, fine, and pleasant day throughout.
 19th.—Very foggy until 2.30 P.M., clearer afternoon; fine evening.
 Much warmer, especially on Sunday and Monday. Air damp throughout the week.—G. J. SYMONS.

COVENT GARDEN MARKET.—FEBRUARY 20.

A VERY quiet market this week, with all classes of fruit now coming short. Outdoor vegetables are plentiful and prices low, but forced goods are in demand. Large quantities of Broccoli are arriving from Cornwall and the Channel Islands.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½ sieve	2	6 to 8	0	Melons.....	each	0	0 to 2	0
Apricots.....	dozen	0	0	0	Nectarines.....	dozen	0	0	0
Chestnuts.....	bushel	10	0	0	Oranges.....	½ 100	3	0	10
Currants.....	½ sieve	0	0	0	Peaches.....	dozen	0	0	0
Black.....	½ sieve	0	0	0	Pears, kitchen.....	dozen	1	0	3
Figs.....	dozen	0	0	0	dessert.....	dozen	8	0	12
Filberts.....	½ lb.	0	6	0	Pine Apples.....	½ lb.	1	6	5
Cobs.....	½ lb.	0	6	0	Plums.....	½ sieve	0	0	0
Gooseberries.....	½ bushel	0	0	0	Raspberries.....	½ lb.	0	0	0
Grapes, hothouse.....	½ lb.	3	0	0	Walnuts.....	bushel	5	6	0
Lemons.....	½ 100	6	0	10	ditto.....	½ 100	0	0	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	dozen	2	0 to 4	0	Mushrooms.....	pottle	1	6 to 2	0
Beans, Kidney forced.....	½ 100	2	0	0	Mustard & Cress.....	punnet	0	2	0
Beet, Red.....	dozen	6	3	0	Onions.....	bushel	2	3	2
Broccoli.....	bundle	0	1	0	pickling.....	quart	0	4	0
Brussels Sprouts.....	½ sieve	2	6	0	Parsley.....	doz. bunches	2	0	0
Cabbage.....	dozen	1	0	0	Parsnips.....	dozen	0	0	0
Carrots.....	bunch	0	4	0	Potatoes, frame.....	½ lb.	0	6	2
Capiciums.....	½ 100	1	6	2	Potatoes.....	bushel	3	6	7
Cauliflowers.....	dozen	2	0	0	Kidney.....	bushel	5	0	0
Celery.....	bundle	1	6	2	Radishes.....	doz. bunches	1	0	1
Coleworts.....	doz. bunches	2	0	0	Rhubarb.....	bundle	0	6	1
Cucumbers.....	each	1	0	0	Salsify.....	bundle	0	9	1
Endive.....	dozen	1	0	0	Scorzenera.....	bundle	1	0	0
Fennel.....	bunch	0	3	0	Seakale.....	basket	0	9	2
Garlic.....	½ lb.	0	6	0	Shallots.....	½ lb.	0	3	0
Herbs.....	bunch	0	2	0	Spinach.....	bushel	2	6	4
Lettuce.....	dozen	1	0	0	Turnips.....	bunch	0	3	0
Leeks.....	bunch	0	2	0	Veg. Marrows.....	each	0	6	0

WEEKLY CALENDAR.

Day of Month	Day of Week	FEBRUARY 28—MARCH 6, 1878.	Average Temperature near London.			Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	Days.	m. s.			
28	TH	Royal Society at 8.30 P.M.	49.3	33.4	41.3	6 49	5 36	5 39	1 38	26	12 44	59				
1	F	Royal Medical and Chirurgical (Anniversary) at 8 P.M.	49.0	35.5	42.2	6 47	5 38	5 59	2 52	27	12 32	60				
2	S		49.8	32.2	40.0	6 45	5 39	6 14	4 5	28	12 20	61				
3	SUN	QUINQUAGESIMA SUNDAY.	49.7	31.3	40.0	6 43	5 41	6 26	5 18	29	12 8	62				
4	M	London Institution at 5 P.M.	48.9	31.7	40.6	6 41	5 43	6 37	6 24	30	11 56	63				
5	TU	Royal Horticultural Society—Fruit and Floral Com.	48.9	32.6	40.2	6 39	5 45	6 47	7 33	1	11 41	64				
6	W	Society of Arts at 8 P.M. [mittees at 11 A.M.]	49.7	32.8	41.1	6 36	5 47	6 58	8 43	2	11 27	65				

From observations taken near London during forty-three years, the average day temperature of the week is 49.5°; and its night temperature 32.7°.

MUSHROOM CULTURE.

AMONG the many productions of the garden to which a gardener has to direct his attention the Mushroom ranks with the most delicate and highly-prized, especially by those who have a liking for this most delicious vegetable; and yet, notwithstanding this, how seldom one sees an article devoted to its culture compared with the numerous opinions and experiences of different gardeners relating to vegetables that do not rank so high.

The culture of the Mushroom is one of the most interesting duties with which I, as a gardener, am acquainted, and if your space will admit of a few details I shall have much pleasure in giving them.

I will commence with spawn. "The most essential requirement to grow Mushrooms successfully is good spawn," says "A KITCHEN GARDENER," and who will dare to deny the truth of this statement? But I must confess that after all good spawn as regards Mushrooms is only on a level with good seeds in the culture of other vegetables, and unless the good spawn and the good seeds have the proper treatment the one will not give satisfaction more than the other. Spawn to be good should not be in a too advanced stage; in fact, as long as the fibres are just discernible and have worked all over the cake, that is all that is required, as if the fibres are too large the spawn will not keep good so long, nor will the products be so certain. It is also necessary that it should be kept perfectly free from damp.

Whilst dwelling upon this head a few remarks upon the making of spawn bricks will not be out of place. The compost should consist of one-half of good stiff loam void of fibre, one-fourth of fresh cow dung, and one-fourth of horse droppings from the stable, with which there should be enough of short straw to hold the whole together when made into bricks. This compost should be well mixed and knocked up like mortar, and allowed to lay in a heap a day or two; the compost is then ready for making into bricks. I omitted saying that a little water may be used in the mixing, but no more than is absolutely necessary. A mould similar to those used by brickmakers should next be provided, but not made quite so deep nor so heavy as those used for clay. Having a heap of the compost on the potting bench, a pail of water, and a little sand handy, the operator may commence (spawn) brickmaking in earnest. Fill the mould with the compost, ramming it well into the corners so as to turn out a perfect brick; work the mould to and fro a time or two, keeping it firmly pressed to the bench, and with a piece of board made to fit loosely in the mould smooth the top; make two holes in the brick with the finger, slightly sand it, place the board on, move the whole sharply to the left, raising it at the same time, and with the two thumbs on the board press out the brick on to a handbarrow, which should be slightly sanded, and so proceed until a sufficient quantity be made. The pail of water is necessary for wetting the bench, and the piece of board to facilitate the smoothing part of the business. An

active man may soon produce enough bricks for any ordinary demand.

The bricks should then be placed in a dry airy situation, but not in the full glare of the sun, as they require to be dried gradually. Just before they are quite dry fill the holes with spawn from a brick which is known to be good, pressing it very firmly, and sealing it in with a mixture of clay and cow dung. This done, place the bricks on edge until the fresh paste is dry, when the whole should be collected and closely stacked in the Mushroom house to heat; if there is not enough bulk to cause heat of themselves the temperature of the house should be raised to meet the case. If a temperature ranging from 70° to 75° is maintained in the stack, in a month or six weeks the majority of the bricks will be found white with spawn and have a strong smell of Mushrooms; these should be put away in a dry place until required. By adopting this method the cultivator knows the sort of spawn he has to depend upon, and it is a method that I can from experience strongly recommend.

Preparing the material for making the beds is the next point to be noticed, and in this I differ slightly from the generality of cultivators, who do not hold with letting the dung ferment to any great extent. The method I adopt is as follows:—Every morning I have all the droppings from the stable collected and thrown into a heap, which is turned every morning, when fresh droppings are added, mixing the old with the fresh, beating it slightly with a fork. This is continued until sufficient droppings are collected; it will then require turning once or twice more in order to sweeten the last-added droppings.

Making the bed. Here also I differ from some who advocate deep beds. In my house I have three beds 4½ feet by 6½, and in measuring the depth previous to writing this to be the more accurate in my statements I find they are only 8½ inches deep, including soil, and the quantity of Mushrooms gathered from these beds for three months past is ample proof that a greater depth is not necessary.

The material should be made as firm as possible in the beds, and the temperature narrowly watched, and so soon as it has declined to 80° no time should be lost in inserting the spawn, which should be about the size of a hen's egg, and inserted 2 inches deep and 9 inches apart over the bed. This done tread the bed firmly, leaving it perfectly level. In the course of a few days the soil, which should be rather stiff than otherwise, may be placed on 2 inches deep and be made firm and level. The bed should then be covered about 2 inches deep with hot droppings that are suitable for making a bed; the whole is then complete. On the same day of the month following on which the bed was spawned the covering should be removed. I repeat the same day of the month, for I venture to say if these rules are strictly carried out by that time the spawn will be showing through, and if the covering be left longer much of the crop will be damaged.

I have a bed at the present time which was spawned on the 9th of January and to-day (February 16th) it is completely covered with Mushrooms, some of which are as big as a large shirt button.

The temperature of the house should range from 55° to 60°, and as little fire heat as possible should be employed.—
G. W. PRIOR.

PRUNING ROSES.

I THINK someone last year about this season wrote to the Journal expressing surprise that no one had written any hints on pruning Roses. Lest he should again bring this charge I beg to offer a little advice on this point. At all events, what I have to say is the result of much experience and also very severe loss.

All kinds of fads have I tried in pruning, and most of my experiments have been accompanied by the loss of a very large number of trees; also, I must tell your readers that I never write advice on any critical matter of Rose culture without strengthening my own opinion by asking the advice of great trade growers.

I remember when I was a curate in Sussex being called upon to read a paper at a clerical meeting upon a most difficult subject. This I managed to do with great success by calling in the aid of my kind old vicar, who let me pick his brains by the hour together. When complimented on the paper I freely acknowledged that in fact I was giving them the ideas of the good vicar as well as my own, and that they owed to him and not to me any benefit that they might have derived from the effort. "Never mind that," was the reply; "we would much rather hear the vicar through you." So in a similar way I may say to anyone who may feel inclined to kick at a conceited parson who lives in the "wylds" of Dorset from offering his advice upon any point which is interesting at the time, that it is not only my duty as a member of your staff to express my ideas, but that I take great care that those ideas shall be sanctioned by the experience of others whose sole business in life is to cultivate thousands of Rose trees.

First, then, as to the time of pruning. Writing these notes on February 19th, I say without the slightest hesitation that now is the time to commence pruning for all those who live in the south. What do I mean by the south? Well, I would define the south by the old historical division—south of the Trent.

I do not advise people who live in Yorkshire or Lancashire and the adjacent counties, and of course further north, to prune for another month, but all others should begin now. I am not only speaking to exhibitors, but to all Rose-growers.

I am aware that many cultivators of the garden Rose (if I may use that expression to distinguish them from exhibitors) prune in November, or in the autumn; but even then, I suppose, will find it necessary to re-prune in the spring. I state the present as the time to commence pruning for this reason—the Manetti cannot bear late pruning. I am writing principally of this stock. Mr. George Paul has over and over again impressed upon me and my friends that it is almost fatal to defer pruning till late in the spring. Mr. Walters of Exeter gives the 12th of February as the best date for commencing work in these parts, and no one is more successful than he in growing good plants. Commence pruning, then, now at once with the Manettis. Leave the Briars till all the former are done, and leave your Teas for another month or six weeks.

Next as to the mode of pruning. Shall I cut hard or easy? Shall I cut my plants almost down to the ground, or merely snip them as a Billy goat would if turned loose in the rosery? Before I answer such a question as this I must know what sort of plants I have to deal with. If they are a lot of young beauties bought last autumn from the great nurserymen—what we call one-year-old cut-backs—then be very tender with them; spare the knife, take much time, handle them with the greatest care. Take hold of the plant with one hand and cut each shoot down to a sound outside eye. Any direction as to number of eyes it is impossible to give, for the principal aim is to find a good, bold, sound, outside eye. By outside I mean one that looks towards the sun or light. If, however, I have to deal with old well-established plants, jolly old customers that look at you as much as to say, "Come along with your knife and do your worst. I don't fear you; I will soon turn your steel and make you weary of pruning me!" As for eyes they have none; their hides are too hard, their bark as well as their "bite" is very severe, and their thorns are like those of the Prickly Pear, so cut away at them, and the eyes will in due course appear, followed by most luxuriant growth.

But among Hybrid Perpetual Roses there are certain sorts which require different treatment to the majority. For instance, spineless or softwooded Roses like Comtesse d'Oxford, Victor Verdier, Mdle. Eugénie Verdier, Marie Finger, and such like will not stand such hard pruning as the others. Then weak growers must be differently treated. You must not attempt to deal with Marquise de Mortemart as you would Abel Grand. You must be very tender to the former—just pruning it, no more. The robust growers like Madame Rothschild do not require the hard treatment as such vigorous fellows as Edward Morren or Charles Lefebvre.

The Teas when their time comes must, of course, meet with very tender treatment. You have here to deal with most delicate ladies, and you must trim their hair with great care and give them every attention, and not think for one moment that you can handle such aristocrats as you did their bucolic brothers. Spare the knife here; just tip the shoots and thin-out the weak and decayed wood.

Let your reason guide you in all you undertake, and you will, I think, succeed in doing justice to your plants.—
WYLD SAVAGE.

DUKE OF BUCCLEUCH GRAPE.

VERY rarely indeed do I write a line on any subject that I am not intimately and practically acquainted with, therefore I had better be honest and state that I have never grown a rod of the Duke, so that my remarks may go for what they are worth. "Not worth much," perhaps some may be ready to say, yet possibly they may be worth as much as those of some disappointed growers; at any rate, they are not born of prejudice.

I esteem the Duke of Buccleuch the grandest white Grape in cultivation, yet I do not grow it, and for the sake of consistency I may state that it is because I have not a chance of doing so. I am not one of those so circumstanced as to have the privilege of ordering and growing every new Vine that "comes out," yet I am glad to have some compensatory advantages. Noblemen and gentlemen have their fancies, and the nobleman for whom I have had the pleasure of growing Grapes for several years will not permit any other sorts than Black Hamburgh, Muscat of Alexandria, and Lady Downe's in his vineries. With those he is satisfied, and boasts that he has a better supply of Grapes than have others who grow several varieties.

But to "the Duke." Although I have not grown this, the best-abused Grape in cultivation, I have seen it grown—seen it succeed and seen it fail, and I am sorry to say that the failures have preponderated. Several gardeners will probably be surprised to hear that Mr. Douglas cannot grow the Duke. I am not surprised, for according to his teaching he grows Vines under a high temperature, which will produce good Black Hamburghs, but I am very doubtful if the treatment is so suitable for "the Duke." It would be instructive to know under what conditions as to temperature the Duke of Buccleuch is grown by Mr. W. Thomson at Clovenfords, Mr. D. Thomson at Drumlanrig, and by "COLUMBUS." I shall be much surprised if their success has been attained by the aid of such high night temperatures as I presume by his writings that Mr. Douglas adopts in his Black Hamburgh houses. The Duke is a Vine of exceedingly succulent habit, and a high night temperature and much atmospheric moisture are, I think, foreign to its requirements. I doubt if this Vine, like other new and highly cherished plants, has not been injured by kindness.

From its nature, too, it is reasonable to suppose that it cannot endure crowding so well as many other Grapes. It must have abundance of space, which, in conjunction with a comparatively low night temperature and very little of atmospheric moisture, conduces to short-jointed growth and fruitful wood, the reverse of these conditions producing wood of a contrary character. "The Duke" has generally been either planted in old Vine borders (which seldom results satisfactorily), or has been worked on old Vines and has not received that amount of space and light that would have been secured in new vineries.

I had written thus far on the arrival of the Journal containing the reply of "COLUMBUS" to Mr. Douglas, and I perceive the discoverer (not of a new continent, but of a mode of growing successfully a new Grape) has anticipated my inquiry respecting the temperature, which I am not surprised to see is a low one. Mr. William Thomson states the treatment the Duke receives is "of the most ordinary kind," which I pre-

sume includes a low night temperature. Will Mr. David Thomson, who I know grows "the Duke" successfully, oblige by communicating his experience on this matter? I ask this because the best Vine of the Duke and the finest Grapes I ever saw were growing in the vinery of an amateur which did not receive any artificial heat at all.

There is another aspect of the question that may be worthy of some consideration. Has not the Duke sustained injury by high-pressure propagation? Experience teaches that a Vine cut from imperfectly ripened wood does not make such a satisfactory cane as that from an eye which has been taken from wood thoroughly matured. Such was the demand for the Duke when its fame was first proclaimed, and subsequently ratified by the visit of Mr. Barron to Clovenfords and the award of the Fruit Committee of the Royal Horticultural Society, that every available portion of cane was propagated from, whether the wood was ripe or unripe. I do not suggest that this was done by the raiser of the Duke, but by those who purchased the Vine "for stock." I think I may go further than that, and presume that many Vines were raised by striking the young shoots when they were not much thicker than knitting needles, a mode which is not uncommon in increasing the stock of new Vines which have won high honours, but withal, as I believe, an unnatural mode, which promotes a debilitated constitution. It is an axiom that a bad cutting cannot make a good plant, and hundreds of the Duke of Buccleuch Vines have been raised from bad cuttings. Vines raised from highly forced young shoots can hardly fail to be succulent in their nature, and I for one cannot regard them as attaining with any certainty a sturdy habit, hardy constitution, and a fruitful character. There must be a cause for the Duke succeeding in some places and failing in others, and since failures have occurred with admittedly good cultivators it is reasonable to suppose that the cause is a constitutional one, and that the evil or weakness, or whatever it may be called, has been acquired since the Vines at Clovenfords were officially inspected and favourably reported upon by a competent authority. It is difficult to either prove or disprove that high-pressure propagation is a chief source of the evil that so many complain of; but if it is, the evil will in time cure itself, and the Duke, as "COLUMBUS" observes, "will find its proper level." But, apart from the constitutional aspect of the question, I think that a high night temperature is contrary to the natural requirements of the Vine generally and to the variety in question particularly. I am anxious to hear what other cultivators have to say, and shall be particularly glad if Mr. D. Thomson will tell us just what he thinks on the whole subject.—A NORTHERN GARDENER.

NATIONAL AURICULA SOCIETY, SOUTHERN DIVISION.

THE scant encouragement given to the exhibition of this beautiful spring flower by the two great metropolitan societies (owing no doubt to the force of circumstances) led, as we know, last year to the establishment of a branch of the National Auricula Society in London; and through the energy of Mr. E. S. Dodwell and the liberality of such generous patrons of horticulture as Messrs. McIntosh, Whitbourne, Wilson, and others, a most liberal schedule was prepared, and considering the season a successful exhibition was held at the Crystal Palace. The same arrangements have been made for the present year, although the Hon. Sec. has unhappily been laid by with severe illness and has not consequently been enabled to canvass so extensively for the Society as he has done before. Deaths, too, have occurred amongst the subscribers, and therefore it is very desirable that all who feel interested in the growth of this beautiful spring flower should aid the movement. The schedules are issued, and can be obtained from Mr. Dodwell, 11, Chatham Terrace, Larkhall Rise, Clapham, S.W. Should the season be propitious we may hope that the 25th April will see a still larger display of Auriculas and Polyanthus at the Crystal Palace than even that of last year.—D., Deal.

OUR BORDER FLOWERS—POPPYWORKS.

THE Horned Poppies are a very small family of plants, but are none the less interesting on account of their limited numbers. We claim at least one of them as our own. The plants are found on some of our seacoasts, and when seen in their native homes have a very striking appearance. *Glaucium luteum* is covered with a fine glaucous hue, and has dew-like

bespangled sea-green leaves, which give the plants a very ornamental appearance. The whole plant abounds in a yellow juice, which is very fetid and possesses poisonous properties. *Glaucium luteum* is an attractive seaside plant. The flowers are very short-lived, but are produced in rapid succession, affording a fine display for a long time. The flowers are succeeded by a large seed pod often a foot in length, having the form of a horn, hence the appellation of Horned Poppy. The plant requires room to develop itself in cultivation, when it often attains the height from 2 to 3 feet. When well grown in the border and shrubbery the plants are very effective. They



Fig. 25.—*Glaucium luteum*.

can also be turned to good account for edging or bedding purposes as white-leaved plants, but to have them dwarf for this purpose the flower stems must be pinched out. *Glaucium fulvum* is much the same in appearance, having somewhat deeper-coloured flowers. G. Fisheri is the most attractive from its having much deeper-coloured flowers, nearly approaching an orange colour.

The plants are easily increased by seed sown as soon as ripe. The seedlings appear in the autumn, and flower early in the following season. When sown in spring the plants flower in the autumn. They are also increased by side shoots taken off with a heel, smoothed with a sharp knife, the cuttings being inserted in sandy soil in well-drained pots, and placed in a cool shaded pit or frame. The plants thrive in any ordinary garden soil, but are the better for liberal treatment. They are regarded by some as biennials, but I have had them last for years, and I cannot but regret that they are so seldom seen in cultivation.—VERITAS.

VEGETABLE CULTURE.

CHAP. IX.—THE ONION.

SOME suppose the Onion to be indigenous to Africa, but this and the date of its introduction into this country are not definitely known. It is well known, however, that it has been cultivated in Britain from a very early date. There are very few soils or situations in which it will not succeed to a certain extent, but the size and quality of the bulbs are influenced greatly by soil and situation, especially the former.

The best soil for producing a heavy crop of Onions is a moderately heavy loam. A soil half clay is neither good for the seed germinating nor for the bulbs swelling freely; at the same time the Onion must have something substantial to do well, and a light sandy soil with little in it will never produce a satisfactory crop. Respecting the two extremes, when a clayey soil is the only one available the part intended for the Onion crop should be dug up roughly early in autumn, and at the same time a large quantity of good manure—coal and wood ashes, road scrapings, and stuff of this description—should be incorporated with the soil. A week or so before

sowing time a quantity of old decayed vegetable soil, any old soil in which plants have been grown in pots, and a general mixture of open materials of this kind, should be spread over the surface and worked in with a fork. Onions equal to the best I have seen have been produced on clayey ground when treated in this way. Extremely light soil is more difficult to deal with than heavy. In the place of wood and coal ashes, road scrapings, or other light material, a quantity of heavy soil and strong manure should be dug in, and this should only be a few inches below the surface. Before sowing, a liberal quantity of thoroughly decayed manure should be forked into the surface, and the seed when sown should be covered over with old vegetable soil.

We always sow Onions after Celery and the plan answers capitally. The soil is very heavily manured for the Celery, and after it is cleared off the ground is merely turned up roughly without adding any manure. It is generally about the beginning of February before the Celery is cleared off the part we want for the Onions. After lying rough for two weeks or more according to the weather a thin coating of the old decayed vegetable soil is spread over the surface with a sprinkling of soot and a little lime, and the whole is lightly forked-in a few days previous to sowing. Moderately heavy soil generally contains more grubs and insects than very heavy or light soil, and the addition of a little lime and soot is an excellent precaution against the subsequent depredations of all such pests. Indeed it is a very safe plan to apply these two useful ingredients to all kinds of soil intended for Onions. In all cases the soil should never be dug over unless it is dry. This must be particularly attended to when the ground is being forked over immediately before sowing the seed, because when the soil is trodden on and worked when it is wet or adhesive it cakes and hardens as soon as the weather is dry for a week or two, and this is anything but beneficial to any kitchen garden crop, more especially the Onion.

Spring Onions may be sown at any time from the middle of February until the end of March. When the soil is dry enough no opportunity should be lost after the first-mentioned time. The most convenient way is to sow in beds. The number and length of these must of course be regulated according to the demand and the proportion of ground to spare, but the width of the beds should be between $3\frac{1}{2}$ and 4 feet, with 15 or 18 inches of footpath between the beds. In making the beds first measure them off and place a small stick at the margin of each; then stretch the line along to show where the alley will be, when the soil to about the depth of 2 inches should be thrown out of it on to the beds. This may be done roughly until the beds have been got into form and the seed sown, when the edges of the beds should be cut straight and the alleys be neatly raked. The seed may either be sown broadcast or in rows. For convenience in after-culture we always adopt the latter plan. After the bed has been roughly formed drills 6 or 8 inches apart and about $1\frac{1}{2}$ inch deep are drawn across the bed; the seed is then sown thinly in the drills. When the soil is very good the seed may be covered over with it to the original level of the bed, but when heavy the drills should be filled up after sowing with some light old soil from the potting shed. In light soils, when the surface is very dry after sowing the seed, the whole bed should be firmly trodden with the feet and afterwards raked smooth. Heavy soil should not be trampled on. In sowing broadcast the surface of the bed should be made moderately fine, and the seed must be covered with about half an inch of soil from the paths. After finishing the beds at sowing time they require no further attention until the plants are an inch or two above the ground. When they are sown broadcast little or nothing can be done to them when of this size, but when in rows the Dutch hoe should be carefully run between them. This is a great benefit to the plants on all kinds of soils, but more especially on heavy ground. After the first hoeing this operation should be repeated every ten days until the plants are about half grown, and after that the beds should always be kept perfectly free from weeds and open on the surface.

Thinning should begin when the plants are 3 or 4 inches high. At first only those which are nearly touching each other should be drawn out. These thinnings make excellent salad. The second thinning may take place a week after the first. This time the plants should be left about 2 inches from each other. This allows them to grow to a considerable size, but as soon as they are beginning to meet again every other plant must be pulled out. As they have a good hold of the ground by this time they should only be drawn out

immediately after rain when the ground is soft, otherwise many of them will snap off by the smallest part of the stem and grow again. This last thinning will leave them 4 inches apart, and useful-sized bulbs can be grown at this distance, but those of a large size must have more room. The most profitable way of growing them, however, is not to thin them out systematically, for it will be observed that some of them are nearly as thick in the neck or stem as they are where the bulb should be, while others are small-stemmed and much larger at the root. These "thick necks" never make good keeping bulbs, but they do very well for drawing for immediate use; and every one of them should be drawn out as they are wanted, to give more space to those forming large bulbs. Broadcast plants must be thinned-out in the same way, and they should be left as evenly over the bed as possible.

By the beginning of August the crop should be fully grown, and that month should be devoted to their ripening. When the growing season has been very wet it very often happens that by the end of August, although the bulbs are fully grown, the tops are quite green, and when this is the case it is not wise to pull them up, but the stem should be given a twist and the top be laid flat down on the ground. After lying for a fortnight the root will be quite ready for lifting, but this should only be done when they are quite dry. As soon as they are pulled up they should be laid on their sides on a gravel walk or any dry surface fully exposed to the sun. Here they should be turned over every other day, and allowed to lie for eight or ten days, when they may be removed to a dry airy shed or loft. They keep well in a place of this kind during the winter provided frost is excluded from them. They should not lie in heaps for any length of time. The best way of preserving them is either to spread them out thinly or make long ropes of them and hang them up. The best should only be done the latter way, and the worst kept loose to be used first. When properly kept, Onions will remain fit for use all through the winter and on to May.

This is the manner in which the bulk of the Onion crops are grown; but most practical gardeners grow what is called an autumn-sown crop, which serves several useful purposes. The autumn sowing should be made during the first or second week in September. The ground should be prepared and the beds made in the same way as for spring sowing; but a very small bed will suffice at this time, as the plants are not thinned-out, but allowed to remain in the bed during the winter and transplanted early in spring. If the position of the seed bed be well sheltered and the ground is not retentive it is not necessary to protect the crops in any way during the winter. As soon as the ground is in good working order after the beginning of February a piece of it should be prepared in the same manner as for sowing the spring crop. Rows are then marked 15 inches apart, and the plants are lifted and dibbled into these 5 or 6 inches apart. As the season advances the hoe must be run through the beds frequently. In April those showing thick necks may be pulled out and used, and the others will have formed good-sized bulbs for use in May and June. Onions cultivated in this way generally attain a greater size than those from the spring sowing, and for exhibition purposes well-fed autumn-sown bulbs are preferable to those sown in spring.

When the ground has been prepared as directed few or no insects will disturb the plants, otherwise there is a small white maggot which cuts the plants off at all stages of their growth and sometimes destroys the whole crop. A few Carrots are sometimes sown with the Onions for the worms to feed on instead of eating the Onions, but this is only a partial remedy. Where it is impossible to prepare the ground properly before sowing the seed, as soon as any of the plants show the slightest sign of becoming yellow mix a quantity of soot and lime together. Spread this between the plants and hoe it in. The first shower will take it to the roots and give the vermin a check.

Giant Rocca, Large Flat Tripoli, and Giant Madeira are the best varieties of Onions for sowing in autumn. For sowing in spring preference should be given to James's Keeping, Nuneham Park, Bedfordshire Champion, Danvers Yellow, and Improved Banbury. The small Silver-skin is the best to grow for pickling. It is treated like the others, excepting that the seed should always be sown broadcast and the plants be grown closely together.

The Potato Onion grows in clusters, which are divided and planted annually. It may be planted at the same time as the autumn-sown Onions are transplanted from the seed bed;

indeed, we generally follow up these on the same piece of ground with the Potato Onions. The whole crop is lifted in June or July and stored like the other crop. When any are used the clusters are divided and a few of the best left for planting again. When planted the bulbs are not wholly covered, but about the time they are fully swelled all the soil is removed from round the bulbs, so as to allow them to swell freely and ripen at the same time.

It is so unnecessary to grow the Tree Onion, and it is so very little cultivated, that making no remark on it here cannot be regarded as an important omission.

Garlic and Shallots succeed well when cultivated like Potato Onions, that those who are successful with the one will not fail with the others.—A KITCHEN GARDENER.

JUDGING ROSES.

I HAVE been much interested in the discussion on Rose judging provoked by Mr. Curtis, and quite agree with my good friend "WYLD SAVAGE," that the plan proposed by that excellent rosarian is simply impracticable; neither do I think that such a minute account of points is, as a rule, at all necessary, except in cases where the competition is unusually close. In order to ensure Roses being judged correctly, and to the satisfaction of the exhibitors generally, care must be taken in the selection of the judges, and only those should be chosen who are successful exhibitors themselves and who live amongst their Roses. It is only men like these who really know what blooms each variety is capable of producing, and to them alone should such responsibility be entrusted.

I quite agree with "D. Deal," that "good judges need not be taught;" but, as at some country shows there may be a difficulty in procuring the services of efficient men, it may be advisable for the National Rose Society to lay down some rules for their guidance, and the first golden rule I should like to see laid down is that form should be the first consideration, and I cannot give a better definition of form than by quoting from Reynolds Hole's charming "Book About Roses," where he says "A show Rose should possess beauty of form—petals abundant and of good substance, regularly and gracefully disposed within a circular symmetrical outline." The next consideration should be colour, which must necessarily include freshness, and the last consideration should be size. That form is, as "WYLD SAVAGE" says, "the great desideratum of a Rose" is forcibly shown in the lovely Marie Baumann as compared with the giant Paul Neyron, the former possessing all three qualifications, the latter possessing colour and size, but wanting form; by comparison wanting everything.

Having tried to show what in my opinion a perfect exhibition Rose should be like, the next point in judging is to find out which stand contains the greatest number of perfect Roses as well as the smallest number of imperfect or weak blooms; this, of course, can be done by counting, and will often decide the matter, but in cases where the numbers are nearly even a more exhaustive scrutiny is necessary, and I think the only satisfactory course to be pursued then is to go carefully over each stand and give points to each bloom—viz., three points to a perfect bloom, two to one not quite so perfect, and one to only a moderately good one. Should the points still remain even the judges must then consider which stand taken as a whole has the freshest colour, the greatest size, and the best foliage, and to do this properly the stands must be placed beside each other in the same light, as a little difference in positions often has a great effect on the appearance of the Roses. Having taken all these points carefully into consideration I think the judges will then be able to make a satisfactory award.

With regard to giving additional points to Tea and Noisette Roses I am sorry to be entirely at variance with "WYLD SAVAGE." If you give them because these varieties are more difficult to grow you must (as a former writer well puts it) extend the same favour to some of the more delicate Hybrid Perpetuals. What can be more lovely than a good bloom of Madame Furtado? and a shyer grower I do not know. On cut-back plants I find it simply impossible to grow it, and yet I suppose no one would think of giving more points to a bloom of that Rose than to one of Charles Lefebvre or Alfred Colomb. Fond as I am of Teas and Noisettes I cannot see any reason why they should have such undue preference; they have a great advantage over Hybrid Perpetuals, inasmuch as they can be shown in classes with them and yet have exclusive classes of their own as well.

Some writer suggests that allowance should be made for the different distances Roses have travelled, but that is simply unfeasible, as judges certainly should not know to whom the different stands belong, and, even if they do, Roses must be judged as they appear at the time of judging; if it turns out that the winner of the first prize lives at the greatest distance (and I have often known such to be the case) all the more honour to him.

There is one other rule which I hope to see made and rigidly enforced, and that is that any duplicate of a Rose shown under another name should disqualify the exhibitor. A duplicate under the same name may be an accident, and I should be disposed to give the exhibitor a chance of replacing it. I have seen prizes given to stands containing more than one duplicate, which the judges probably failed to observe. The blooms of many varieties being very similar their distinctness can only be recognised by their foliage or wood.

Whatever rules may be determined upon by the National Rose Society will, I feel certain, be welcomed by all exhibitors if they tend to ensure what we all earnestly wish—that the best Roses may win.—R. N. G. BAKER, *Heavitree*.

I DO not apologise for joining late in the discussion on Rose judging, in which, and kindred other subjects incidentally cropping up, I take a great interest, because articles, as a rule, in our Rose journal are prone, meteor-like, to disappear too suddenly before their full bearings have been discussed and settled. This happily cannot be said to have been the case with the present series, which has been kept up with great spirit.

As I differ in one at least crucial point from many writers I will venture to give you my view—(1), I object strongly to the National Rose Society issuing through their Committee any code soever of laws in the direction of Rose judges, and I would add as a rider (2), I would not have the names of Rose judges necessarily published as a suggestive piece of advice or warning (as the case might be) before any given exhibition, for the following reasons: Because an honorary secretary (as Mr. Gould pertinently writes), if he knows his work, makes choice of judges who know their work, while, if they do not, no code of laws will fit them for their office. Again, if particular judges have peculiar fancies, I am afraid that, whatever "M. N. R. S." may think to the contrary, no high central authority will have any effect on their decision. The crotchety man will be crotchety still, and so wedded to his opinion as never to consent to be divorced from it. I may be wrong, indeed I sincerely hope I am, but when I see our presidential Mæcenæ cease overlooking fully developed blooms, our controversial Rupert deifying Teas, "H. C." tabulating by point cards, and "C. P. P." making allowances, then, but not before, will I pin my faith on a code of rules for the direction of Rose judges.

Yet this discussion must already have done an immense amount of good, in a quarter, too, most wanted, I mean in helping and guiding many exhibitors and enlightening the public generally. I ask pardon of the latter humbly, but, as an old honorary secretary who has served them well and judged occasionally from the earliest days of the good old Birmingham to the last National Rose Show, I must say that with few exceptions the general public know as little of the comparative merits of a collection of exhibition Roses as they would of a box of Oranges or pen of Southdowns; and it is to the lack of the A B C of Rose lore that the indifference of the public is to be traced towards our beautiful Rose shows, and, as a sad consequence, their hopeless position in an *£ s. d.* point of view.

Viewed in this light I hold an elementary code of rules, intended for general application and circulation (inexpensively with the annual schedule), would be an immense boon to rosarians as a class, while a dogmatic code of rules would either fall as a dead letter in its application to Rose judges, or, if effectual at all, as an apple of discord. Holding such views *Quæta non movere* is the motto of—THE HEREFORDSHIRE INCUMBENT.

NOTES AND GLEANINGS.

THE Hon. and Rev. J. T. Boscawen communicates the following interesting fact on RAISING LILIES FROM SEED:—"Last autumn," remarks Mr. Boscawen, "I let a *Lilium giganteum* shed its seed when green or nearly so, and I have quantities of little plants self-sown well up already. This proves what I have previously said, that if Lily seed is sown before

it is quite ripe it will take but one year instead of two for the seedlings to come up." I have found this was the case with many plants difficult to raise."

— THE Hon. A. Leslie Melville, in confirming the estimate of Mr. David Thomson of the great decorative value of *AZALEA SOUVENIR DU PRINCE ALBERT*, informs us that when he first saw this Azalea in M. Van Houtte's nursery at Ghent some years ago he purchased a small plant for himself, and the finest specimen he could obtain, and sent it to Windsor Castle as a present to Her Majesty. Subsequently on requesting his niece, who was in waiting on Princess Christian, to visit the royal gardens and inspect the plant, the gardener apologised at his inability to show it to her because he had to send the best plant he had to place on the table of the King of the Belgians, who was on a visit at the Castle, and that happened to be the specimen Azalea sent from Ghent. The following year Mr. Melville sent his gardener to Ghent, who related the above circumstance to Mr. Van Houtte. The great horticulturist was so elated that he exclaimed, "The King of the Belgians is my King, who admired the plant sent from here to your Queen. Come in; here is bed and board for you as long as you like to remain at Ghent." We concur in the estimate of Mr. Melville and Mr. D. Thomson that this Azalea is very valuable for decorative purposes. It is semi-double, white, heavily flaked with bright rose, and is distinct both in flowers and foliage.

— AS PLANTS FOR THE ADORNMENT OF ROOMS, either by being placed in windows or occupying vases in corridors, &c., we have not seen any more suitable than the examples of *Dracæna terminalis* which were exhibited at South Kensington last week by Mr. B. S. Williams. The plants in question were splendidly cultivated, for although they were from 2 to 3 feet high and had remarkably stout stems, and the lowermost leaves issuing almost from beneath the soil, the pots in which they were growing did not exceed 5 inches in diameter. The foliage was excellent, the lower leaves being of that bright bronze hue indicative of robust health, the terminal leaves being bright scarlet. The plants were rendered additionally suitable for the purpose alluded to by the healthy carpet of *Lycopodium denticulatum* growing on the surface of the pots.

— THE great value of *CHOROZEMAS* for early spring decoration was strikingly exemplified by the fine specimens staged at the last meeting of the Royal Horticultural Society by Messrs. Standish & Co. of Ascot. The plants referred to were not remarkable for their great size so much as for their general health, condition, and excellent training. They were somewhat oval-shaped and about 2½ feet in diameter. The foliage was of the richest green, and the flowering sprays were not closely tied to a trellis, but were sufficiently free to display their natural elegance. The species was *C. ilicifolia*. We recently observed in the nursery of Messrs. Carter & Co. at Forest Hill some small plants in 4 and 5-inch pots of *C. varia grandiflora*, which were flowering freely. Such plants are not only valuable for general decorative purposes, but afford sprays for cutting as bright as they are elegant. *Chorozemas*, owing to their ready growth and free-flowering properties, are eminently worthy of the attention of cultivators for spring and summer decoration.

— WE have received a copy of the eighth edition of "CARTER'S PRACTICAL GARDENER," and, to quote from the letter accompanying it, "since the sale of this work has now reached the large number of forty thousand copies we do not consider any further recommendation is required." We may observe that this success is a proof that the public can appreciate what is useful and practical, and that excessive adornment and unmeaning display, which while they may "catch the eye" of a peripatetic public, are not essential to secure the support of discriminating readers, whose object is to obtain information to aid them in making their gardens profitable and pleasurable. We predict that of "Carter's Practical Gardener" still further editions will be required, and we think that a book so serviceable in its nature and varied in its subjects is worthy of an index or a table of contents.

— A SMALL volume, entitled "POTATO PESTS," has been published at New York by Dr. Riley. It relates to several insects which prey upon the Potato, but principally to the Colorado beetle.

— A CORRESPONDENT in referring to the rapid GROWTH OF LONDON states that a large portion of the land that Messrs. Bagley have so long and successfully cultivated at Fulham as market gardens is being converted into brick fields, and that

the firm have secured 150 acres of land in the neighbourhood of South Fields, Wandsworth, for the cultivation of vegetables. Our correspondent observes that in a few years all the market gardens of Fulham will be built over. There are some hundreds of houses in contemplation at the present time, which must necessarily drive cultivators further away from the metropolis.

— IN order to render intelligible the award of a cultural commendation which the Floral Committee of the Royal Horticultural Society awarded to Mr. Johnson on the 19th inst. for plants of *DAPHNE INDICA RUBRA*, it is necessary to say that the plants were only five years old, yet were close pyramids about 18 inches in diameter at the base, and 2 feet high. The foliage was large, glossy, and of a dark green colour, and the flowers were numerous and fine. Considering that this is proverbially a slow-growing plant, the specimens exhibited well merited the mark of recognition accorded. When thus well grown this good greenhouse plant is highly attractive, and its powerful yet delicious fragrance imparts an additional charm to an old favourite which well repays for any skill bestowed upon it by its cultivator.

— THE round beds in the central transept of the CRYSTAL PALACE are now very gay with bulbs and forced flowers, such as are generally employed for decoration at this period of the year. But a plant which is not by any means so commonly met with as its merits deserve, and which shows to much advantage associated with the other flowers, is *Begonia manicata*. The tall flower spikes of this *Begonia* and the cloud of delicately-tinted miniature flowers not only contrast effectively with the large foliage of the plant, but, as rising above the more massive flowers with richer colours, enhances the beauty of a floral group. The plants are found to continue in beauty for a considerable time in the moderate temperature of the Palace. They require, however, being grown in a warmer house until the flowers commence expanding. It may be observed that unless this *Begonia* is well grown its effect is unsatisfactory, but when it receives correct and generous treatment it invariably commands a large share of appreciation.

— BY a clerical error Brown's *Exquisita Primula* as flowering in Messrs. Carter's nursery at Perry Hill was described on page 149 as being rosy purple in colour. Its colour is a bright magenta crimson with a yellow eye. The flower is large and of good substance. It is one of the brightest and best of *Primulas*.

— A MOST successful instance of flowering the *EUCHARIS AMAZONICA* in a pot is to be seen in the gardens of J. Boustead, Esq., Wimbledon. Year after year this plant becomes more floriferous, while it retains its exuberant growth of foliage. This plant fills a No. 2 or 18-inch pot, and its diameter through the foliage measures from 5 to 6 feet, and as a rule bears three crops of flowers annually. During April and May last year the plant had twenty-eight flower spikes, in the following September forty-two flower spikes, and during last month forty more, making a total of 110 flower spikes within the year, which is equivalent to 550 single blooms, and the last batch of flowers were even of larger size and stronger than the blooms that appeared in the summer, no spike having less than five flowers. Mr. Jordan would do good service by detailing his successful mode of culture of this much-prized flower.

— THE Société Centrale d'Apiculture et d'Insectologie has had constructed a pavilion in the Champ de Mars for the purpose of exhibiting in 1878, in the most complete manner, everything relating to the education of USEFUL INSECTS, especially bees, and the means of preservation of all kinds against noxious insects.

— ALLUDING to *BEGONIAS* AS WINDOW PLANTS as mentioned on page 102, an amateur speaks approvingly of B. SAUNDERSII SEMPERFLORENS. This *Begonia*, he says, is one of the most valuable because of its dwarf habit, its shining foliage, and its great freedom and long-continuing flowering properties. The flowers are white, and being erect and arranged in close heads at the extremities of the shoots are well adapted for bouquets. Our correspondent recommends this *Begonia* not for window decoration only, but also for conservatories large and small. "It should be cultivated," he says, "wherever attractive decorative plants are required, and where cut flowers are cherished."

— A CORRESPONDENT ("EDAX") states that SPARMANNIA AFRICANA merits all that was said about it on page 91, and is worthy of much more extensive cultivation.

than it receives at the present. He is of opinion that it is not the seldom-seen-and-uncared-for plant that has been represented, but is to be found in many places where fine old-fashioned plants are cared for and the cultivator has not quite devoted all his attention to the red, white, and blue. "EDAX" has seen the *Sparmannia* in the north of England cherished as an heirloom in many cottage homes, and hopes with "J. P." to hear still more of this fine old plant, which forty years ago was cultivated as a choice stove plant.

— WE have had intimation from several districts that WINTER CUCUMBERS have not been satisfactory during the present winter, and we have had more than the usual number of inquiries relative to unhealthy plants. The cause of failure is perhaps attributable to the great prevalence of dull weather. Gardeners can supply artificial heat in clear cold weather, but they cannot obtain the light that is necessary to grow Cucumbers well when clouds prevail over a long period during December and January. Failures, especially during a dull season, frequently occur also from the plants having been raised too late in the autumn. We have observed that where the crops have been good throughout the present winter the seed was sown towards the end of July, and a strong growth was made before the dark days and long nights of winter.

— ALLUSION has recently been made to the practice of SHADING CAMELLIAS. Some of the most healthy Camellias, writes a correspondent, that he has seen are in the Royal Gardens, Windsor, "in a very light house facing the south, and yet the plants are seldom if ever shaded." A plant of *C. reticulata* growing in a brick pit at Chiswick, with its foliage trained close to the glass and facing due south, is never shaded, and the leaves are quite fresh and healthy. "AN OLD GROWER" states that much of the scorching of Camellias is due to an insufficient supply of water during the growing season. If the plants are thoroughly watered, he says, to prevent the young growths flagging, the leaves are seldom seriously disfigured by scorching. The safe course to adopt is probably to water copiously yet judiciously, and to shade intelligently.

— WE have received from Messrs. James Fussell, Sons, and Co., Mells Iron Works, Frome, a short treatise on SCYTHES AND MOWING. The history and manufacture of the implement are referred to, and the various uses to which the scythe has been applied are noticed, also the fixing and sharpening of the blade are detailed and illustrated by several engravings. These figures become the more necessary because, owing to the general employment of the mowing machine, the majority of young gardeners possess little or no practical acquaintance with the scythe, but who may nevertheless be called upon to use it, for, as is suggested by the treatise, there are thousands of hilly lawns and knolls where the mowing machine cannot be worked which must continue to be kept close by the scythe, and a knowledge of this old implement is therefore essential to all gardeners.

THE ROYAL GARDENS, KEW.

THERE has lately been a good deal of agitation among the inhabitants of Richmond and Kew about opening Kew Garden as a public recreation ground from ten in the morning instead of from one, as it is at present. Like most agitations of a local character and of no great moment it has been conducted with the usual amount of noise. Meetings have been held and deputations have waited on the First Commissioner of Works; flowers of local oratory have been cultivated, and the "rights of the people" have been asserted, as they always are when a small section of the community wants to appropriate public property for their own benefit. The only argument we have heard in favour of this movement is that some speculating builders having succeeded in forming a neighbourhood along the road between Kew and Richmond, the inhabitants who have become possessed of these houses are endeavouring to increase their value by adventitious means, and these are to urge the Government to open the Royal Botanic Garden of Kew from morning till night, that these people and their domestics may disport themselves at the national expense. Such a proposition, even at first sight, seems monstrous, and when it comes to be investigated one cannot but be surprised at the presumption which these people are capable of.

To convert the Royal Botanic Garden of Kew, the most renowned in the world, into a public recreation ground for the population of a great city like London, would at once be a prostitution of the use and object for which it was founded,

and a serious obstacle to the advancement of that science which has been there fostered for upwards of a century with results so brilliant. Such a thing is not required by the inhabitants of London. They are already provided with parks in all directions within convenient distances of their homes; and on ordinary occasions when they want to go the country there are plenty of places, such as Epping Forest, Hampton Court, Bushey Park, and Richmond, where the nation has provided them with space enough for recreation. But it is not for the benefit of the masses of London that this movement is now set on foot; it is for the languishing populations of Kew and Richmond, which are already so amply provided for. Kew Green, with its beautiful turf, well-kept paths, and shady trees, under which are convenient resting places, is surely enough for all the requirements of the inhabitants of the Royal village, of whom there are not so many; and Richmond Park may well satisfy the people of Richmond. What need, then, is there for the opening of the Royal Botanic Garden as a recreation ground, which was founded for totally different purposes, and which is maintained by the nation with a totally different object?

Supposing such a thing were unfortunately to happen that the national collection were to be opened to the public all day long, the staff, whose present employment is to be one half the day engaged in their legitimate work and the other half caretakers, would require to be all day care-takers, while another set was required to attend to the cultivation and management of the establishment. It is known by experience that grounds like those at Kew, beautiful as they are, have not yet had the soothing and humanising effect on the British rough that optimists think they have. Lord Stamford found that at Enville, and has been obliged to close his beautiful grounds altogether. If, then, a great additional outlay is to be incurred so as to secure that proper care be taken of the valuable national property at Kew, is it to be tolerated that the people of Great Britain are to be taxed to this extent that the handful of people who live on the Richmond road and their nursemaids may have three hours longer use of the Botanic Garden than they have now? It is too absurd to be thought of, and we hope that the First Commissioner of Works will not be induced to divert from their legitimate use the unrivalled national collection so that a few of the local inhabitants may be relieved of what they have talked themselves into considering a grievance. It becomes all who are interested in the advancement and the protection of scientific inquiry throughout the country to raise their voices against this mis-appropriation.

FRUIT TREES IN PLEASURE GROUNDS.

"AMATEUR, Cirencester," in speaking approvingly of Mr. Cole's suggestion of combining beauty with utility by planting fruit trees in pleasure grounds, has through the Editors requested further particulars respecting the combination of evergreens and fruit trees recorded on page 65. I have been unable to attend sooner to the letter of request which has been forwarded to me, and while I can answer the questions that "AMATEUR" has submitted, I am not certain that I can make the mode of planting intelligible. I will, however, try to do so.

The combined fruit and shrub garden does not exceed an acre in extent, and is irregular in form. The ground was first trenched quite 18 inches deep, and the trees and shrubs were planted in a small state from 4 to 5 feet apart, but eventually half of them were removed and planted in other positions, so that the fruit trees and evergreens in the garden alluded to are now on an average about 9 feet apart. The fruit trees now range from 5 to 8 feet in height, according as they have been pruned as bushes or pyramids, and there is ample room to pass amongst them for pruning and gathering the fruit. At the back of the enclosure fruit trees preponderate, and they diminish in numbers towards the front, which is planted wholly with evergreens and a few flowers.

The subject can be made more plain and the example more easy to be worked from by supposing the garden is formed into a square and the trees and shrubs are planted in straight rows. In that case the position is as follows:—At the extreme back a belt of Laurels form the boundary: the Laurels next the fruit trees are slightly pruned to keep them "within bounds," but they grow upright as high as they like or can. At the front of the Laurels and 6 or 8 feet from them comes an entire row of *Beurré de Capiaumont* Pear, which is compact in growth and forms natural pyramids. The next row is of *Victoria Plum* and shrubs alternately, the latter consisting of green

Hollies, Yews, and Arbor-Vitæ, which require little pruning, but they are pruned as is found necessary. Then comes another row similarly planted, but the fruit trees are Cellini Apples; and in front of this again are shrubs and dwarfed Apples, Cox's Orange Pippin. The next row has twice the number of evergreens that it has fruit trees, then come two rows of shrubs more closely planted, which brings us to the flower border. The shrubs employed are mostly of close upright growth, such as Thujas, Hollies, Irish Yews, Arbor-Vitæ, and Junipers, the front rows having greater variety, including Box, Aucubas, and Golden Queen Hollies.

Such is the principle that was adopted and which can be carried out with such modifications as are necessary in a shrubbery of any shape or size. The fruit trees have succeeded excellently, and certainly the garden is not less admired because of their presence amongst the evergreens in such large numbers.

A chief cause contributing to the success of the combination is that the ground was well prepared; and perhaps not of less importance was it that the fruit trees and evergreens were all planted at the same time. Probably were fruit trees planted in an established shrubbery with the soil already permeated by the roots of shrubs that the trees would not grow nearly so well; but when all are planted at the same time and have the same chance of occupying the ground with their roots there is no real danger that the evergreens will injure the fruit trees by appropriating the "lion's share" of support.—A SQUIRE'S GARDENER.

EARLY PEAS.

YOUR correspondent Mr. Campbell adopts the right way of growing Peas early. They require no nets, no boxes, no glass, which for young early Peas is a delusion. For a dozen years here I have grown them *à la* Campbell, and they have always done well. Just now my First Crop, Ringleader, and William I. are about from 3 to 4 inches high, hardy and strong, without any protection whatever. My first border (south) is about 100 feet by 10. I find by having a quantity to pick from early, if only a dozen pods are ready in each row, I can gather a dish many days earlier. I also grow Little Gem in the Cherry house in boxes, and gather from them about the middle of April generally. These, if closely picked and well watered, last for a long time, and very useful they are.—AN OCCASIONAL CORRESPONDENT.

RASPBERRIES

PROVIDED Raspberries are planted in deep and well prepared soil, and have proper attention both in summer and winter, I think they will succeed on the same plot of ground as long as will any other crop. I have had in my care a bed of Raspberries that was known to be upwards of fifty years old, and better crops of fruit I never gathered than from that bed. In summer the young shoots which clustered around the stools were thinned out when about 6 inches high instead of being left, as they too often are, to form a dense thicket during the summer, only to be thinned out in the winter. The ground between the rows was very slightly pointed over with a fork, and manure, and occasionally a slight sprinkling of soil, was spread on the surface annually; also, as the district is a dry one, a liberal dressing of salt was applied to the ground in April. The old stools under that treatment produce canes 6 feet in length, which are quite as fruitful as canes in another plantation which is only five years old. But while I consider that Raspberries receiving good cultural attention will occupy ground profitably throughout the lifetime of the cultivator, I should still consider it prudent in making a new plantation to select ground that had been occupied by some other crop. It is by permitting the young growths to be excessively crowded during summer and mutilating the roots by deep digging in the winter that makes the ground miscalled "Raspberry sick," but the Raspberries are not so much sick of the ground as of the unnatural treatment to which they are not unfrequently subjected. The beds of wild Raspberries to which "WILTSHIRE RECTOR" has alluded are probably older than the rector, and I think it would not be difficult to find evidence that natural plantations of Raspberries which now yield fruit plentifully are centenarians.

Every cottager who has ground space at his disposal should grow Raspberries, and if he has not stakes nor wire for supporting the canes they may safely be left to support them-

selves. It is to be feared that a lack of stakes, &c., is a great impediment to Raspberry cultivation, and yet more Rasps are produced without the aid of stakes or wires than with them. If the young growths are timely and sufficiently thinned during early summer the canes become sufficiently sturdy to carry all the fruit they can produce and to resist the effects of the most boisterous winds.

A few years ago I obtained canes of all the sorts grown in Mr. Pearson's nursery at Chilwell for the purpose of testing the merits of the different varieties. After several years of trial I reduced them to the three following, which are placed in the order of merit:—1, Carter's Prolific; 2, Northumberland Fillbasket; 3, Fastolf.

I esteem the first-named the most serviceable variety in cultivation, and I am surprised to find that it is not mentioned in the new edition of Thompson's "Gardeners' Assistant." It is not by any means a new variety, but is so well established that it is grown by the acre in Kent, and is, I am informed, one of the most profitable of the sorts grown there for market purposes.—A MIDLAND-COUNTIES FRUIT-GROWER.

MY own experience of growing Raspberries leads me to think that "WILTSHIRE RECTOR" is wrong in saying that ground becomes Raspberry-sick, and that hence they must not be grown too long in the same place. Mine have been grown in the same quarter for thirty-five years, and yet we always have an abundant crop of splendid fruit.—R. N. G. BAKER.

IRISH YEW.

IN your answers to correspondents, in reply to "COUNTRY VICAR," you state Irish Yews may be raised from seed. I have sown berries of the Irish Yew, and although the seedlings were of more upright growth than the common Yew, none approached the form of the Irish Yew. The original Irish Yew is, according to Loudon, a female plant, and I presume all which are descended from it will be females, having their flowers impregnated by male flowers on plants of the common Yew or other varieties.—G. C. S.

PELARGONIUM ECHINATUM.

SINCE Zonal Pelargoniums have of late years absorbed such a large share of attention some of the less gorgeous species have been comparatively neglected. A plant nowadays to meet with favour at the hands of general cultivators must be of quick and easy growth and be capable of making an imposing display, or must otherwise be adapted for some particular decorative purpose: in a word, it must serve some really useful and practical end or it is cast aside to make room for others of greater popularity. Thus have many dainty gems of the floral world been pushed off the stage in favour of something more utilitarian in its nature and more commanding in its appearance. It is not necessary to say one word against Zonal Pelargoniums. They have probably done more to make English homes and gardens bright and beautiful in summer than have any other plants; and they, as every year's experience more fully proves, are almost equally adaptable for contributing of their beauty in greenhouses, &c., in winter. Let them be grown in all their massiveness of truss and great variety of colour, but let some others of the genus be grown as well as they. Others are grown. Those beautiful varieties known as Show and Fancy Pelargoniums will always assert their claims to cultivation and will command attention; it is not necessary, therefore, to urge their acquisition.

But there are Pelargoniums less frequently seen than those above alluded to, and which are not only distinct and attractive, but which are really serviceable. Of such is the species figured—*Pelargonium echinatum*. For affording charming cut flowers during the winter months this species is particularly valuable. Its clear tall flower stalk and pleasing and delicately coloured truss render this species almost indispensable where flowers for bouquets and vases are cherished during the late autumn and winter months. It is only in comparatively few gardens where this attractive Pelargonium is cultivated; but that its value is becoming more generally recognised is found by the increasing demand for plants. As an instance of the rising popularity of *P. echinatum* and its varieties Mr. Cannell has found it necessary to encourage the growth of his large stock, and to sacrifice the flowers in order to increase the number of cuttings and to establish young plants.

Unlike the Zonal and Show Pelargoniums, which are usually

increased by inserting cuttings in autumn, *P. echinatum* must be struck early in spring; the plants have then time to form growth during the early summer months, and to enjoy a natural period of rest in late summer preparatory to flowering during the dull period of the year. To cut down and attempt to strike this species in the autumn would be tantamount to

cutting off the young growths from Show Pelargoniums in March and then to expect the old plants to flower freely in May; the present, therefore, is an excellent time for propagating plants of *P. echinatum*. The cuttings may be struck in heat and the plants be grown-on similar to Zonal Pelargoniums—that is, be placed on shelves near the glass in a light



Fig. 26.—*PELARGONIUM ECHINATUM*.

house having a genial temperature, afterwards removing them to frames, and eventually placing them in the open air. They will cease growing during the hot days of summer, but in the autumn will start the stronger for their short period of rest. When this autumn growth commences the plants should be repotted by shaking most of the old soil from their roots and placing them in the same sized pots, when a rich compost being employed, and a moderately heated and light structure being provided, they will produce trusses of bloom throughout

the winter that cannot fail being appreciated for bouquets and for vase decoration.

Besides the species, which has pearly white flowers feathered and spotted with maroon on the upper petals, two darker varieties of great beauty have been raised by Mr. Sampson and are being distributed by Mr. Cannell—namely, Spotted Gem (which has received a first-class certificate), rosy magenta spotted and striped with dark crimson; and Rosy Morn, rosy violet shaded with carmine and spotted and feathered

with crimson. *P. echinatum* was introduced from the Cape of Good Hope in 1789, and received its specific name on account of the hooked spines which form on its stem apparently in the place of stipules.

STEAMING AND DAMPING VINES—HIGH TEMPERATURES.

[It seems to me that if we could discuss such questions as this from some common standpoint it would greatly aid us in our investigations, and help us to remove many questions that gardeners have been wrangling over for years out of the region of doubt and speculation. It is hardly likely that we shall convince each other by simply recording our own opinions, which may or may not be based upon false premises, notwithstanding apparently corroborative experience which no one would perhaps gainsay, while doubting the conclusions drawn from it.

With regard to the subject which heads this letter, I suppose we are all agreed that that treatment which secures the best and most permanent state of health and fertility in the Vine is the best for everybody to practise. The question, then, is first, What is the best state of health? and secondly, What kind of treatment is most likely to secure it? Is good health and sturdy vigour denoted by broad flabby leaves and attenuated long-jointed wood, or by leaves of moderate size but otherwise well developed, of good colour and substance, and short-jointed wood and plump buds? If by the first, then the correct treatment as dictated by everyday experience would be high artificial temperatures and a steaming atmosphere; if by the second, moderate temperatures and a rather dry atmosphere, with freer ventilation. I am not sure that I have stated the case in a perfectly clear and intelligible manner; but when I first began to experiment in this matter I put the question to myself something after the above form, and I need hardly say that both reason and experience led me to the conclusion that the low night temperature and comparatively dry atmosphere system was the best under the exceptional conditions which the Vine is subjected to under glass in this country; and though I have both read and heard much discussion on the subject since, my conviction has not been in the least shaken, but rather confirmed.

Hot-water pipes are simply a necessary evil, as is proved by the everyday practice of steaming and damping to correct their ill effects, which practice has become engrafted in the Vine-growers' creed, its origin having so far been lost sight of. Hence many young practitioners have no reason or explanation to offer for it—they just continue it as a matter of course because they have been taught to practise. One phase of the question really is, Whether shall we continue to keep up high night temperatures by means of hot pipes, and steam and damp to prevent the same from doing injury, or do with lower temperatures and less fuel, and obviate the necessity of so much steaming and damping? It looks an absurd question to put, but it is just what it amounts to. It is not a question of a gardener here and there producing fine Grapes by either plan. We know that plants will submit without apparent injury for a time to unsuitable treatment, but to those who point to their fine examples produced under the high temperature and damping system I would say, You have produced them by your good management in other respects, and not in consequence but in spite of the steaming and damping which you have subjected your Vines to.

As regards my own practice, I never damp our vineries except when they are shut up to economise sun heat, and then it is necessary to prevent scorching; but the weather I prefer is balmy dry summer weather, when we can throw the vineries wide open and leave them open night and day without fire heat and without damping of any kind. Supposing such conditions to be most favourable to the Vine, can the other extreme be right?—J. S. W.

NOTES ON NORTH DURHAM AND NORTHUMBRIAN AMATEURS AND FLORISTS.—No. 1.

PANSIES.

In general north-country amateurs and florists are scarcely known or heard of beyond their limited range of local acquaintances, yet many of them are men of horticultural calibre and skill; and perhaps their feats may have seldom been chronicled in any horticultural periodical, nevertheless they would rank with amateurs of perhaps more favoured districts.

Many of them are generally plodding men of industry, who work from early morn to sunset, and let it be said to the credit of the pitmen also, that several of them are as fond of flowers as they are supposed to be of their collic dogs. It is a consoling fact, and I believe one that has its advantages on society at large, that if the poor plebeian once turns his mind to the study of Nature in the forms of her simplest flowers, the effect on him and his locality will be highly beneficial, and that local flower shows are the means of promoting and developing this taste is beyond doubt.

The subject of these notes, Mr. Thomas Battensby, Hag Hill, Axwell Park, Blaydon-on-Tyne, is a carpenter by trade, and at present clerk of the works of the Axwell Park estate. He is a real specimen of the intelligent industrious amateur, and as such made his *début* in the horticultural arena in the cultivation of the Pansy some twenty years ago. Inheriting an innate love of and thirst for knowledge, his ideas soon led him into more lofty aspirations, and perhaps no amateur is more deserving of the cognomen "practical" than he is. Whether it be as a florist, a grower of vegetables, or a cultivator of plants, his name has ever formed an important figure at all shows betwixt Bishop Auckland and Alnwick; but in the cultivation of the Pansy and *Gladiolus* he has been very successful, especially in the former; in fact, he has never been beaten, and he has also raised many show flowers.

CULTIVATION OF THE PANSY.—Mr. Battensby's mode is as follows:—He prefers good, light, retentive soil, and the manure old hotbed dung, or else old decomposed cow manure, which he thinks is better still, to be spread about 3 or 4 inches deep, and the ground dug about two spits deep early in the season, and afterwards forked over five or six times during the winter. This he considers of paramount importance, as it causes the soil and manure to be thoroughly incorporated, and also gives the soil the full benefit of the atmosphere, believing also it is valuable in checking or destroying that dire enemy of the Pansy the wireworm. Mr. Battensby generally commences planting his Pansies about the beginning of April in beds 2 feet wide with alleys between them, enabling the plants being easily attended to. The plants are placed a foot apart in the bed. He allows about four shoots to each plant, and one flower to each shoot. He mulches the surface of the beds with horse droppings, which he considers prevents the movements of slugs, and waters the plants with diluted urine and soapsuds. This he uses two or three times a week, to which is added a little soot for the sake of imparting colour. He syringes the plants frequently on the evenings of sunny days. He is a successful hybridiser, the flower to be hybridised being covered with glass; each class of colour is kept separate, and the best flowers on the strongest plants are selected for crossing and seeding.

As regards insects, green fly he suffers but little from, as he finds they seldom attack plants in robust health. For slugs he keeps a sharp look-out after dark. Wireworms are also sedulously watched for: on the first appearance of the slightest flagging he at once resorts to a searching investigation at the roots, and generally finds the enemy concealed about an inch below the surface. He only shades his flowers in case of rain, and generally uses glass with a current of air underneath.

He is an advocate for Pansies being shown on boards or green stands, each flower being placed upon a piece of white card. For spring planting he does not take off the cuttings before October, preparing a cold frame by digging-out the natural soil for about 1 foot, and filling-up with good sifted loam, leaf soil, and sand. For blooming early he takes off the cuttings early in the summer, and after they are struck plants them in the beds in September. He never grows his Pansies two years in the same piece of ground.

The following are a few of the flowers which he has raised; they are all show varieties, for he is not an ardent admirer of fancies:—Lady Hutt, white self colour; Robert Scott, dark purple; Elizabeth (good), white ground and purple belt; J. C. Murray, yellow ground and bronze belt; Miss Clavering, pure white (good); Mrs. Adams, a cream self; Sir Henry A. Clavering, Bart., yellow (best yellow). In addition to these he also has about two dozen seedlings to name. He also grows the following flowers of other raisers:—

Selfs—Robert Black, dark purple; Locomotive, dark; Robt. Scott, purple self; Lady Hutt, white; Thos. Cassells, cream; Sir Robert Napier, black self; Mrs. Knight, and Miss Muir. *White Grounds*—Miss E. Cochrane, Miss Adamson, Sunny Park Beauty, Miss Ira Clark, Mrs. R. B. Matthews, Miss Bessie McAslan, Lady Lucy Dundas, and Miss Todd. *Yellow*

Grounds.—J. B. Downie, Defoe, Robert Burns, Normand, Perfection, Novelty (Hooper), J. C. Murray, and Mrs. Russell.

I will next refer to Mr. Battensby's mode of cultivating the *Gladiolus*.—B. C.

NEW PLANTS AND FLOWERS.

BILLBERGIA PALLESCENS. *Nat. ord.*, Bromeliaceæ. *Linn.*, Hexandria Monogynia.—“It was introduced more than twenty years ago from Central Brazil by M. Libon. A specimen flowered in the Kew collection last November.”—(*Bot. Mag.*, t. 6342.)

IRIS CRETENSIS. *Nat. ord.*, Iridaceæ. *Linn.*, Triandria Monogynia.—“This pretty little Iris has a wide distribution round the eastern shores of the Mediterranean, as it occurs in Greece, Asia Minor, Crete (where it ascends the hills to 5000 feet above sea level), and the Ionian Islands. It has been confounded with the South Russian and Transylvanian humilis and the Algerian unguicularis, but is quite distinct from both, and the three inhabit different geographical areas.”—(*Ibid.*, t. 6343.)

IONE PALEACEA. *Nat. ord.*, Orchidaceæ. *Linn.*, Gynandria Monogynia.—Native of Upper Assam. “There are two other Mishmi species of Ione described by Griffith and Lindley, and there is also a Sikkim one (*I. cirrhata*, *Lindl.*), found by Dr. Hooker, which has oblong leaves and very differently formed sepals, resembling the rude drawing of Griffith more than that of *I. paleacea*. Our plant was received from Dr. King of the Calcutta Botanic Gardens, and flowered in October of last year at Kew.”—(*Ibid.*, t. 6344.)

PLEBOMA GAYANUM. *Nat. ord.*, Melastomaceæ. *Linn.*, Decandria Monogynia.—“*Pleroma Gayanum* is one of the least conspicuous of the genus. It is a native of Cuzco, in Peru, where it was discovered by the French botanist and traveller, Claude Gay, and has been since collected by Lechler. The plant here figured was imported by Messrs. Veitch through their collector Mr. Davies, and flowered with them in October, 1874.”—(*Ibid.*, t. 6345.)

CROSSANDRA GUINEENSIS. *Nat. ord.*, Acanthaceæ. *Linn.*, Diandra Monogynia.—“This charming plant was described by Nees von Esenbeck, forty years ago, from dried specimens in the Hookerian herbarium received from the coast of Guinea, but from which the beauty of its foliage could not be inferred. Since then it has been collected by that most successful of all travellers on the Guinea coast, Gustav Mann, who found it in the mountainous region of the island of Fernando Po, at an elevation of 2000 feet, and in the Sierra del Crystal range, in lat. 1° N., in 1862.”—(*Ibid.*, t. 6346.)

PANDANUS UNGUIFER. *Nat. ord.*, Pandanaceæ. *Linn.*, Dicoelia Monandria.—Drs. Thomson and Hooker found this species in Sikkim, from the Terai up towards Kursiong to about 3000 feet; and in the Khasia Mountains at Joowye about 4000 feet; and at Nowgong, and plentifully elsewhere in those regions. Sikkim plants sent to Kew by the late Dr. Anderson when superintendent of the Calcutta Botanic Gardens first fruited in July, 1873.—(*Ibid.*, t. 6347.)

GARDEN ENEMIES.

WHATEVER differences of opinion may exist as to the value of small birds, snails, grubs, and caterpillars can have few defenders. These are admitted garden enemies, and much trouble is caused and loss experienced by their nocturnal expeditions. Various means are recommended for destroying slugs, &c., but those who have had the most experience in battling with those voracious and almost ubiquitous garden pests generally arrive at the conclusion that the old plan of “catching and killing them” is the most effectual for saving the crops, hence hand-picking of caterpillars, &c., is recommended by most practical men as being the most satisfactory means of eradicating the pests in question. But hand-picking of slugs, while not being objected to by garden labourers and boys, is naturally regarded as repulsive by those amateurs who have to rely on their own hands for preserving their flowers and vegetables from destruction by grubs and molluscs. To such cultivators the little implement figured would be very acceptable. It is so simple that no difficulty can be experienced in the making of it, and that it answers its purpose well we have had sufficient experience. The grub-picker is 7 inches in length, and is made of iron wire about three-sixteenths of an inch in diameter, bent and rivetted as shown in fig. 27. The points are formed of two triangular-shaped

pieces of sheet copper about 1½ inch in diameter at the base and soldered to the ends of the wire, which are flattened for that purpose. The points of the triangles are slightly rounded, which enables them to be used more freely amongst the stems of plants.

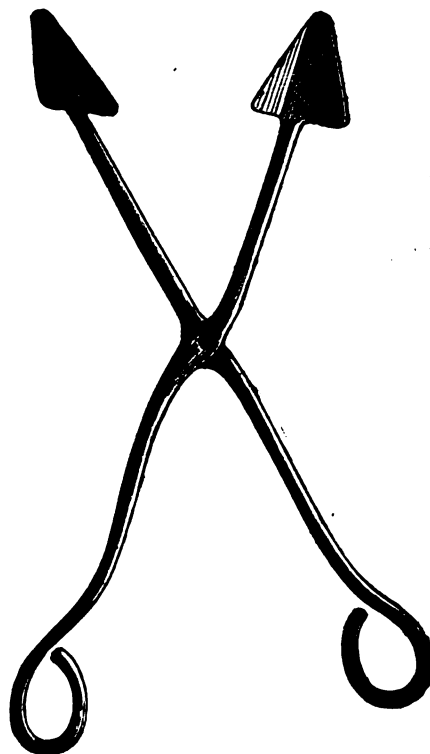


Fig. 27.—The Grub-picker.

As the spring is approaching, and with it those garden enemies that cause such injury and not unfrequently total ruin to valuable and cherished crops of young seedlings, the time is not inopportune for introducing a simple implement which, if it does not render grub-picking pleasurable, enables that necessary work being performed with cleanliness and expedition.]

FERMENTING MANURE ON VINE BORDERS.

“FERMENTING manure and leaves promote the formation of roots near the surface of Vine borders” are the words given on page 74 in reply to a correspondent, and it is further remarked that “the practice is a good one if properly carried out.” Undoubtedly it is, and the obverse is equally true—that the practice is a bad one if it is improperly carried out. Much good and much harm has been done by placing hot manure upon Vine borders: good when placed on at the right time and of the right temperature; harm when it has been placed on too soon, kept too hot, or removed injudiciously. Most gardeners have made mistakes at some time during their practice, especially those who have been zealous in their calling, and such men generally become successful sooner or later. It has been said that the man who has made no mistakes is not likely to have made many experiments, but has been content to follow the beaten path of steady mediocrity. This is a safe course no doubt, but now-a-days the ambition of a gardener must be to pass the “steady mediocrity” stage, or he will be left behind in the keen race where the competitors so greatly preponderate over the prizes to be won.

In no practice of gardening has greater advance been made during the past quarter of a century than has been accomplished in Grape-growing. During that period not only have the greatest crops and the heaviest individual bunches been produced, but the practice has been established of having Grapes “all the year round.” The achievements of successful cultivators have been recorded by the horticultural press, and a stimulus has thus been given to young men to excel in that which is now regarded as about the most important phase of their calling—the art of Grape culture.

It is more than twenty years since I was first impelled to "go ahead" in Grape-growing, and soon after I commenced I made a mistake. Grapes were wanted in May, and by way of "giving them a good start" I covered the border thickly with hot manure almost as soon as the rods were pruned in November. The manure was placed on the roots too soon; for although fresh roots formed freely enough, covered the surface of the borders, and penetrated the manure, yet the Vines broke weakly, and the crop was a miserable failure. I was perplexed, and in my trouble took counsel of an old and intelligent practitioner, who told me, in terms that I shall not soon forget, that I had "drawn the life out of the rods." This, if true, was the "descent of sap" with a vengeance, for he asserted, and I have never been able to contradict him, that the sap stored in the rods for commencing the formation of fresh shoots was drawn downwards and spent in the extension of roots. From that time to this I have never placed heating material on the roots until after the vineries have been kept close and the eyes have shown signs of swelling. I have never had a failure since adopting that practice; but I have seen one. Some years ago I witnessed hot manure being piled on a Vine border in the autumn. I ventured to point out the possibility of a mistake being committed, but received a "mind your own business" sort of reply. The placing-on of the manure was a mistake nevertheless, for the Vines were half killed, and their manager went half crazed. The injury in that case did not result by "drawing the sap" out of the Vines, but was a simple case of first extreme heat having been applied to the roots, and as soon as the error was seen a rushing to the other extreme and removing the manure; indeed, to use a plain term which scarcely exaggerates the case, the roots were first roasted and then frozen. The Vines, as may be supposed, were permanently injured.

Many gardeners who are unable to obtain fermenting material for covering the Vine border look on those who have such fine "heating stuff" with envious eyes. Except when Grapes are wanted at the end of May or during the first days of June it is really unnecessary to cover outside Vine borders with hot dung and leaves. For ripening Grapes in July I have found, after thirty years of experience, that the fermenting material can be very well dispensed with. Instead of applying a hot covering in spring to drive the heat downwards into the border I have found greater benefit result by covering them very early in the autumn, before the sun heat has escaped from them, with a good layer of rich half-decayed manure, and there letting it remain to supply nourishment to the roots and to decay and form a layer of rich soil. I think the value of applying fermenting material to the surfaces of Vine borders is over-estimated, and I am sure it can both be applied too soon and removed too soon. On the other hand I have experienced the benefit of the practice, but under circumstances which I cannot detail now.—YORKSHIREMAN.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Old garden ground that has been long under cropping will be improved by an application of lime, especially land that has been heavily manured and which it is intended to plant with Potatoes. Lime acts as a corrective of an excess of decaying vegetable or animal substances, and in its quick state is very fatal to slugs and obnoxious to a variety of grubs. We advise, therefore, an application at the rate of eighty bushels per acre now, or so soon as the ground is in good working order. We are particular to apply it in dry weather, spreading it equally over the surface whilst fresh, pointing it in at once with a fork. In the case of large plots harrowing will embed the lime sufficiently deep. An application of this kind need not be made oftener than every third year. Ground containing much vegetable matter, as that recently taken in from pasture, is beneficially acted upon by lime, but in no instance should manure and lime be applied at the same time; therefore our remarks apply to ground which was well manured in the autumn and to such as is rich in organic manures, which require liberating to render them available as food for plants.

Cauliflowers wintered in frames which have been injured to the weather as previously advised may have the strongest plants transferred to handlights, four or five plants being placed under 2-feet lights; or they may be planted out on a warm border 2 feet apart and 18 inches asunder in the rows, having protection in case of severe frost. This will afford more room to those remaining in the frame. Those under handlights should be thinned and have the soil stirred about them to encourage growth, giving them also a sprinkling of soot. Parsley sow in drills 18 inches apart, or if for transplanting it may be sown broadcast, which is desirable

in soils where the crop is subject to canker. The new Fern-leaved is very fine for garnishing. An open yet sheltered situation should be chosen. Have all vacant ground as it becomes cleared of the crops manured and dug or trenched preparatory for others, and ply the hoe frequently between the rows of growing crops, maintaining neatness by clearing away weeds and decayed leaves from Broccoli, Greens, &c.

FLOWER GARDEN.

The ground amongst shrubs should now be lightly forked over, but only sufficiently deep to impart a fresh appearance and to bury any small weeds. Weeds of a perennial tap-rooted kind should be forked out. Deep digging among choice shrubs by destroying the surface roots is a great mistake. Before pointing over in poor soils a top-dressing of rich compost will be advantageous. Thin and cut back any shrubs, especially common kinds, which unduly encroach on choicer or weaker specimens. A judicious application of the knife for a few years will give to most shrubs and trees the form desired, and the growth so equalised will be retained with very little after-attention. Some discrimination will have to be made between pruning the pyramid and round-headed trees so as to form the most symmetrical shape, as indicated by their respective habits: the great points to be avoided are stiffness, formality, and unnatural shapes. Bare ground among shrubs may be occupied by the spring-flowering plants, such as Winter Aconites, Snowdrops, Primroses, Daffodils, Violets, &c., which are natural to such situations, but to be effective they should be planted in masses. When so grouped such flowers greatly enliven a shrubbery.

Herbaceous Phloxes are now moving. Old plants will have grown considerably aboveground; they should be taken up and divided, replanting them in fresh soil well enriched with manure. Plants not over-large should have the shoots freely thinned out, leaving the strongest only, with a view to the production of fine heads of bloom. Cuttings of choice varieties may now be inserted, and if they are well grown they will produce much finer heads of bloom than old plants. Push forward the pruning of climbers and other plants against walls or trellises in the open, leaving the strongest and best ripened wood only to be trained-in, avoiding overcrowding. Roses of the Tea-scented or Noisette class should have the ripest and strongest wood only retained, laying the growths in their full length, removing only the unripened points of the shoots. To spur a majority of climbing Roses is to secure a fine growth of young shoots but no flowers. No time should be lost in replanting Box edgings, relaying turf, and completing the planting of all deciduous trees and shrubs.

Roses are moving. Any contemplated planting of new beds or borders or filling up vacancies should be completed as soon as possible. Roses prefer soil of a retentive kind, but it must be well drained. In making new beds or borders incorporate some strong manure with the soil. Many herbaceous plants are commencing growing, and should in the case of tender kinds have a light mulch of some protective material, such as partially decayed leaves or bracken in a dry state. The borders should be dressed, and if required re-arranged. Any plants that are too large may be taken up and divided, planting the tallest growers at the back or centre of the border or bed, disposing them so as to appear to the best advantage when flowering. All plants of this kind are benefited by the application of fresh compost and having short manure lightly pointed in about the roots.

FRUIT HOUSES.

Pines.—Proceed with the potting of the suckers or rootless plants, for which a bed should be in readiness as before advised; 5 to 7-inch pots will be sufficiently large. They must be perfectly clean and dry; drain them an inch deep, avoiding small pieces of crocks, and place a little rough compost over the drainage and sprinkle with soot. Ram the compost (turfy loam) firmly around the base of the sucker, and plunge the pots in the bed. Do not apply water until roots are formed, which will be in about ten days in a bottom heat of 90°, when water should be given as required. Maintain a brisk bottom heat, with the top heat 60° to 55° at night, and 65° by day from fire heat. Any plants in small pots in an enfeebled state should be shaken out, disrooted, and treated as advised for the suckers. Healthy plants which have been wintered in small pots may now be shifted into larger; from 8 to 10-inch pots are suitable for Queens, the stronger-growing kinds having pots proportionally larger. The soil should be lumpy, rejecting the "dust," and be pressed very firmly round the old ball of soil. Plunge them in a bottom heat of 90°, having the top heat 60° at night, or a few degrees less in cold weather, 65° by day from fire heat and 70° to 80° from sun heat. The earliest-started plants will be in flower; avoid wetting the fruit whilst in that state, but maintain the moisture by sprinkling, increasing the temperature about 10°.

Strawberries.—Advantage should be taken of every opportunity to increase the temperature by sun heat rather than endeavouring to keep it down by a large influx of cold air, which is very inimical when the flowers are expanding. Plants swelling off their fruit should have weak liquid manure. On no account must the roots become dry, yet a sodden state of the soil is quite as pernicious as drought. The watering should be copious until the

fruit changes colour, after which the supplies may be less frequent; a drier and lower temperature is also necessary to secure high flavour. Our early fruit is had from plants in pots on shelves, and as we have vineries and Peach houses started at intervals from December to March a succession of Strawberries is maintained from early March until the fruit ripens in the open ground. As fire heat is employed in all the houses we now place a quantity of pots at this time in a ground vinery, at which time the last batch is placed in the late Peach house and vineries. It is now a good time to introduce Strawberries to the shelves of the orchard house.

PLANT HOUSES.

Ferns.—Proceed with the potting of these plants at once, especially those required in quantity for furnishing purposes. *Adiantum cuneatum* is still one of the best. Plants which have been kept cool and dry for a time may be divided, those in 6-inch pots being separated into four, larger sizes into correspondingly more pieces, and be potted singly into $\frac{1}{4}$ to 6 or 7-inch pots, according to the size of the pieces and the purposes the plants are intended for. They are placed in a house having a temperature of 60° to 65° by fire heat. Water is given sparingly until growth takes place, and then is applied more liberally. A good moisture is maintained by sprinkling the house frequently. Air is given moderately. Ferns grown for cutting should not be grown in much shade and a close moist atmosphere, as the fronds so grown soon wither when exposed to light and a dry atmosphere. *Adiantum assimile*, *gracillimum*, *formosum*, *concinnum latum*, *trapeziforme*, *tinctum*, and *farleyense* are very useful, all of which may be increased by division. *Davallia Mooreana* is very useful for cutting, as indeed are most of the *Davallias*, also *Pterises*, which are best raised from spores. *Lygodium scandens* is very desirable for twining round stems of stands, &c., on dinner-tables, and is increased by division. *Gleichenias* endure well in a cut state. They also are increased by division, but the less of it the better. Lumpy peat is required for them. Bold, wavy, pendant fronds are represented by *Goniophlebium subauriculatum*, *Nephrolepis davallioides*, and *Woodwardia radicans*, the two former being increased by division and the latter by young plants borne at the point of the fronds. Where much furnishing is done a quantity of hardy Ferns should be grown for the purpose, particularly the varieties of *Athyrium Felix-femina*, *Lastrea dilatata cristata*, *Polystichum angulare* vars., the crested forms of *Scolopendrium vulgare* and *Adiantum pedatum*, all of which may be had in good order early in the season by forwarding them in a warm greenhouse temperature, they too requiring light and ventilation if the fronds are expected to be at all durable. *Selaginellas* also should be grown in quantity, particularly *S. apoda* and *denticulata* for surfacing, *S. cæsia* being fine for brackets; one of the best for cutting is *S. Willdenovi*. Fibrous peat is suitable for a majority of Ferns, but *Adiantum farleyense* and *A. cuneatum* do well in fibrous loam. Drain the pots well, and in the case of plants not grown for special purposes give a moderate shift. Have the shading ready, but use it only during hot sun to prevent scorching. Maintain a moist atmosphere, watering carefully until the roots are established in the fresh compost. Do not remove the disfigured fronds until they lose their vitality, as it has a weakening tendency; especially is this the case with Tree Ferns.

Stove.—*Isoetes gracilis* divide into small pieces, and pot in 8-inch pots; also place about half a dozen cuttings in the same size of pot of *Panicum variegatum*. These, with some of the *Selaginellas*, are useful for fringing stages, &c. *Paulinia thalictrofolia*, take cuttings of the young growths and grow-on in the light. The leaves are finely divided. Sprays of this and *Cissus discolor*, also *Passiflora trifasciata*, are useful in a variety of ways; or the plants may be grown in small pots. *Plumbago capensis* starting into growth, take cuttings off with a heel of ripe wood, and strike in brisk moist heat. Pot-off when rooted, and grow-on. Old plants should be encouraged to grow by a brisk moist heat with plenty of light, and will come in early. Those planted out top-dress. Cuttings or eyes of *Ficus elastica* strike readily in brisk heat, also *F. Parcellii*. *F. repens* should be grown so as to have long sprays. Shift *Gloxinias* into larger pots, and start another batch; also *Caladiums*. The *Achimenes* started early should be transferred to the pots or pans they are to flower in. Do not crowd the plants too much, and stop them when 4 inches high. Start another batch for the principal summer display. Proceed with the potting of such plants as require a shift, which is only to be done in the case of such as have the roots in an active state. The soil for potting stove plants should always be warmed before being used. Most evergreen stove shrubs prefer peat; it should be lumpy and have a free admixture of sand, the drainage being thorough. *Marantas*, *Crotons*, *Dracenas*, and *Pandanus* shift into larger pots. Repot *Alocasias*, which do best in two parts of fibrous peat, two parts of chopped sphagnum, and one part of well-decayed caked manure, with a free admixture of broken crocks and a sprinkling of sand and charcoal. *Alocasia macrorrhiza variegata* does best in two parts of turfy loam with a third of decayed manure and a sprinkling of sand. *Gymnostachyum*s and *Vriesias* do well in lumpy sandy peat well drained, also *Aralias* of the *Veitchii* type. *Ardisia crenulata* is best raised from seed sown in

shallow pans, potting singly in small pots when the plants are large enough to handle. Last year's seedlings shift into larger pots ($\frac{1}{4}$ will be sufficiently large), keeping them near the glass. The temperature may now be raised to 70° to 65° at night, 75° by day, rising to 85° or 90° from sun heat. Sprinkle the paths, &c., two or three times a-day according to the weather, ventilating carefully. *Clerodendrons* and all quick-growing plants will be benefited by the application of weak liquid manure at every alternate watering. *Passifloras*, *Ipomeas*, and other roof climbers should now be cut in, and the borders have a few inches of the surface soil removed and replaced with fresh compost, giving also a good soaking with tepid manure water not too strong.

Pits and Frames.—Admit air freely to plants in frames, removing all decayed leaves, and water more freely as the sun is more powerful. Violets may have the lights removed in bright mild weather, and should have an application of weak liquid manure occasionally. Shift Intermediate Stocks into larger pots, or if planted out lift them with balls and place three plants in 6-inch pots. They do best on a cool bottom. To *Campanula pyramidalis* give larger pots as required, also to *Humea elegans*, these doing best in cold pits with frost only or barely excluded. *Schizostylis coccinea* after flowering should be hardened off preparatory to being divided and planted out, also Christmas Roses. Lilliums will now be moving, and should have the soil kept moist, also *Tritonias*. Pot *Tigridias* and *Gladioli* for planting out after a time for early bloom. Sow plentifully seed of such annuals as *Mignonette*, *Nemophilas*, and *Schizanthuses* for early flowering in pots, not omitting the ornamental Grasses, such as *Agrostis nebulosa*, *A. pulchella*, *Stipa pinnata*, &c. Cockscorn and *Celosia pyramidalis* sow in heat, also *Petunias* double and single, which are fine for pot culture. Pot a few plants of *Campanula calycanthema*, placing them on a cool bottom, and give them weak liquid manure occasionally after the roots are working freely. Other hardy plants will suggest themselves as desirable for forwarding for an early bloom in pots.

TRADE CATALOGUE RECEIVED.

R. Pennell & Son, Lincoln.—*Spring Catalogue of Flower and Vegetable Seeds and Gladioli.*

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense. Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

SALIX BABYLONICA (G. S.).—This is rather a tender tree, and even in the south its young shoots are frequently injured by frost and canker ensues; consequently, unless your position in Scotland is very much sheltered it would not be safe to plant this Willow extensively. The same remarks apply to *Escallonia macrantha*.

ROSES.—Some correspondents would be obliged by Mr. M. D. Sewell stating the stocks on which his Roses are worked and what manure he uses. Bracken can be obtained from the heaths near London. Roots are formed chiefly during the spring and summer.

MELONS (A Young Correspondent).—You can grow them well if you can command a minimum temperature of 60°.

GASLIGHT IN CONSERVATORY (G. R.).—The small escape of gas when lighting it cannot injure the plants.

GAS LIME AS MANURE (A. S. M.).—Twenty bushels per acre will be sufficient to destroy the grubs. The white eggs on your Vines are probably deposited by some weevil, but no one can decide until they produce larvae.

SEEDS, &c., FOR TEXAS (Concha).—Take seeds in small brown paper parcels. Scions stuck in a potato will keep fresh, and you must graft on stocks of the same or closely relative genera. You will find good instructors in Texas.

MUSHROOM (H. W.).—The specimen sent to us does not appear to be the true Mushroom.

ERYNGIUM AMETHYSTINUM.—"G. D." wishes some of our readers would state where seeds of this plant can be obtained.

EUCALYPTUS GLOBULUS.—"E. P." asks where this tree grows unprotected, and where plants of it can be purchased.

CYCLAMENS (G. S.).—Your request shall have our attention.

HARDY PERENNIALS (J. A. C. F.).—Any of the chief florists can supply them though not in their catalogues.

IVY EDGING (Idem).—Small plants should be inserted about 6 inches apart, larger plants at proportionally greater distances, pegging down the growths if they require it.

CHRYSANTHEMUM CULTURE (G. B.).—Our "Florists' Flowers for the Many" contains instructions for growing Chrysanthemums. The practice of successful cultivators is also fully detailed in two numbers of the Journal—Nos. 819 and 820, of December, 1876.

ERRATUM.—At page 143, right-hand column, ten lines from top, for "12 inches apart" read "2 inches apart."—A. K. G.

CRESTED FERN (*G. D.*).—The frond sent of your seedling Fern (*Pteris serrulata cristata* or *lacinata*) is very distinct. We have seen many crested varieties of this Fern, but not one having such finely divided fronds as the specimen before us. If the plant is a good grower and retains its character it will be very acceptable for decorative purposes.

SMALL GREENHOUSE HEATING (*H. H. W.*).—Write to the makers you name, stating the size of house and asking for particulars and prices. The plant you refer to is probably one of the numerous varieties of *Coleus*.

GLOXINIAS (*W.*).—The following are twelve good and moderately priced varieties:—*Erect flowers*—Candeur, pure white and rose; Mr. Baines, purple and scarlet; Esperance, delicate rose, mottled; Pegase, white and scarlet; Prince Leopold, purple and scarlet; Skeltoni, crimson, primrose, and lilac. *Drooping flowers*—Alice, mauve and buff; Crème et Violet, purple and violet; Charles Dickens, purple shaded violet; Goethe, white and rosy vermilion; Ida, creamy white and blue; and Rose d'Amour, white and crimson lake. Your other question is answered in "Our Letter Box."

RAISING YEWs FROM SEED (*A Country Vicar*).—We have gathered bushels of Yew berries and raised thousands of seedlings, we have also gathered berries of the Irish Yew and sown them, but only a comparatively small number have germinated, and scarcely any of the seedlings have been true to character, probably because the flowers have been fertilised by pollen from the common Yew. Although some of the berries to which you allude may have been swallowed by birds, that process is certainly not essential to the germination of the seeds. We do not think there is any foundation for the assumption respecting the other seeds you name.

VIOLETS (*C. C. J.*).—We cannot inform you of the address. Correspondents do not covet such applications. The varieties required could be obtained for you by any of the florists who advertise in our columns.

FAILURE OF ROSE MADAME CHARLES WOOD (*A Leek Rose-grower*).—We can only attribute the failure of your plants of this Rose to the presence of some noxious substance in the soil. It answers very well with us planted among numerous other sorts. All the "Rose" nurserymen offer it for sale at a low rate, which would not be the case if it was generally a bad grower; and Messrs. Wood, who have raised and sold large quantities of it, inform us that they have never had a complaint of it, nor do they regard it as a delicate Rose. We shall be glad, however, to hear what other rosarians say respecting the growth of this Rose.

HEATING PROPAGATING BED IN A GREENHOUSE (*P. L.*).—A charcoal stove placed under the bottom of the bed would probably answer tolerably well provided you can shut it off from the remainder of the house. Convey the fumes through a pipe outside the house, and keep the stove supplied with fuel. A flow and return pipe taken under the bed from your kitchen boiler would answer much better and prove both a saving of labour and fuel.

CULTIVATION OF ROSES FROM CUTTINGS (*A. J.*).—Your Roses in pots which are growing freely from cuttings made last August require no pruning now. When the roots reach the sides of the pots repot in rich loam, first placing a handful of rough rich manure over the drainage, pressing down the soil firmly and keeping the surface quite an inch below the rim of the pot, so as to ensure thorough watering. Give bountiful supplies of clear liquid manure. Keep the foliage clean, and secure an equal distribution of vigour and symmetrical plants by nipping off the tips of leading shoots or any others likely to become too rampant. If you intend the plants for open beds harden and plant out early in April, taking especial care to have plenty of manure in the soil and also to give sewage. Regulate the growth as required, and strong handsome plants may be obtained in a single season.

WATERING A VINE BORDER (*J. L.*).—Clear water will answer perfectly well for young Vines just planted in fertile loam. It is only as a curative for poverty of soil that we ever advocate the use of sewage or liquid manure of any kind before the Vines are in fruit, then pour on as much of it as you like till the fruit colours, provided the border is well drained.

GRAFTING STANDARD ROSES (*Tyro*).—The best time for grafting the Roses is March, but the scions should be selected now and be placed in soil in a cool moist border to keep them fresh, yet more backward than the stocks. The prunings of Roses may be used as scions provided they have two to three buds that turn outwards. Both ends of the scions should be cut, and those shoots that are moderately thick are the best, but the wood should be young. One scion should be placed on each side of the slit made in the stock if it is thick enough to admit of it.—H. W.

RABBITS DESTROYING CROPS (*A Regular Subscriber*).—You have no legal remedy. A dog chained in the garden would prevent the rabbits trespassing.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

THE CULTIVATION OF BARLEY.—(Continued.)

In reference to the application of manure for barley, it is not often required upon well-tilled farms, especially when sown after turnips fed off. It is, however, different when sown after wheat; the barley will then require a moderate dressing, say 2 cwt. of Peruvian guano, or 1½ cwt. of nitrate of soda and half cwt. of mineral superphosphate per acre. We have known either of these applications answer well, the cost being nearly equal, and they may be sown broadcast just behind the drill and harrowed-in. Other circumstances may occur to render manuring desirable, and the dressing recommended will be found the best and most economical in any case. The mode of laying the land and the size of the ridges at the final ploughing before seed-time is a matter of consequence; for although barley is a summer grain, and the size of the ridges is not of so much consequence for that

crop, yet, as it is usual for the clover to be seeded with it, it is requisite that the land should be laid in such a manner and the ridges of such a form that the clover plant may be uninjured by stagnant water during the winter months, and also that the ridges should be made of the size required for the succeeding wheat crop, because when it is intended to sow wheat at one ploughing after clover the size of the ridges cannot be easily changed.

Let us now refer to the advantages and risks of early sowing. The time of sowing barley is usually regulated by several causes, but chiefly by the nature of the soil and influence of the weather. Upon what is termed good barley soils the best time for sowing is as soon after the middle of February as the land can be made to work freely and the seed can be deposited in a fine and dry bed. It is sometimes sown as early as the middle of the month of January, when the weather has been fine and seemed to invite the seedsman; but there can be no advantage in sowing thus early, the risk being great, not so much of destroying the crop as of injury from a series of checks upon the growth of the plant by frost. As it is usual to sow clover or grass seeds in the barley crop, and the time best suited for this operation being the period of sowing the barley, there would be great risk of the young clover plant being destroyed by frost if sown so very early. The period for sowing may be said to extend from the middle of February to the middle of April, but after that time our experience teaches us that in the majority of seasons a good malting sample will not be obtained. It is seldom that an early season can be obtained upon strong soils, for although the land may be forced into an early tilth in some years, yet the nature of the soil opposes the favourable progress of the plant if sown previous to the middle of March. The bulk of the crop will be found to differ from a variety of causes, such as the preparation of the land, the effect of climate, the sort of seed, and the attack of wireworm and other enemies to which the plant is liable.

We will now refer to the varieties of seed best suited to the soil and climate of different districts, which can only be ascertained by the practice and experience of the cultivators themselves, who are ready to admit that however successful any variety may prove in its produce as adapted to a particular soil or situation, that a continual deterioration goes on unless a change of seed from varying soils takes place. The propagation of different varieties of barley are constantly going on, some maintained for a time and then disappear. Amongst the many sorts now in cultivation must be noticed Chevalier, American, Nottingham, Golden Melon, and Moldavian, with some others. The Chevalier certainly stands highest in estimation for malting purposes, and probably also as giving the best return for cultivation, and particularly that called Hallett's Pedigree, which is known to have been selected and propagated from the Chevalier sort originally, and it is now the best variety for all dry and kind soils which prevail in the eastern and south-eastern counties, for under Mr. Hallett's judicious selection from the best, longest, and strongest ears and stalks, and the kindest and plumpest grains, it has now attained a value which it never could have done by the old plan of simple selection of sort only, for until the Pedigree stock became available the ordinary Chevalier had receded in cultivation, more particularly on loamy soils. In those districts where it has not succeeded the sorts in favour are the Nottingham, American, and Moldavian (often called Thanet). The latter is a short small grain, and will bear later sowing than any other sort with which we are acquainted. The two former varieties are better suited to the stronger soils and moister climate of the western, northern, and some of the midland counties, especially the American sort, for it produces long strong straw and good ears, but the grain is generally coarse, and although it gives under good cultivation a large yield, yet the grain is not so much esteemed for malting as Chevalier and Golden Melon, which is probably the same variety, only the latter name is given it by some recent propagator.

The quantity of seed required will range from two to three bushels per acre according to circumstances, such as early or late sowing, or whether sown broadcast or drilled. It is, however, some-

times dibbled. When sown broadcast upon poor soil not highly manured at an early period, three bushels of seed may be necessary; when drilled upon land in general in good condition two bushels will be found sufficient, when dibbled eight pecks is considered enough. The object in view in dibbling barley is not only a saving of seed, but giving the opportunity of more effectually eradicating weeds, such as charlock, &c., by hoeing. We do not, however, consider that barley will answer so well in thin seeding as most other kinds of grain, by reason of a thin plant tillering so much as to cause the grain to ripen unevenly, rendering the sample coarse and flinty and unfit for malting, and also diminishing the crop.

Barley is unlike wheat—it is not subject to smut; yet some farmers make a practice of steeping their seed for the purpose of preventing the black ears, but we do not consider it is an ascertained fact that they are propagated by contagion like the smut balls in wheat, being rather to be attributed to a combination of causes, such as the weather, the state of the land, the time of sowing, and the lack of change of seed. Barley is also subject to mildew or blight, commonly called "red rust," which usually attacks the plant about one period, just before coming into ear. When the crop is very gross sudden changes of temperature in the weather will often produce it, more particularly when grown on land with a northern or north-eastern aspect. One of the greatest requirements is how to produce the best malting sample, for it is well known that much the largest portion of the general growth is beneath the malting quality. But there is one idea which strikes us as worth following out, for it is an admitted fact that barley when grown in admixture with oats (commonly called *drege*), and sown early, is sure to be a good sample, and this fact seems to point to thin seeding, or, what is preferable, wide drilling; and we know cultivators who drill barley at 12 inches between the rows with about two bushels of seed per acre upon both strong and light land, and the substance of the sample has proved much greater than when sown broadcast or closer drilling has been adopted. There also seems to be no reason why the practice of sowing oats and barley in admixture in the proportion of two-thirds oats and one-third barley should not be extended, for the sample of barley is next to a certainty to be of the best malting quality. It may be adopted with great advantage upon strong or loamy soils, as we have frequently grown from ten to twelve quarters per acre when mixed seed was sown. The next question arises, How can the crop be separated so as to take out the barley from the oats clean enough to offer as a sample for malting? and we recommend that it be done as follows:—Pass the mixed corn through the barley *aveller* or *hummeller*, which denudes it of all the beards, leaving only the clean grain, and then by the use of Coleman & Morton's patent adjustable rotatory corn screen, the barley will be separated from the oats so perfectly as to realise the top price for malting purposes. This screen should also be employed when the samples of barley are uneven, for at a small cost instead of selling a sample as grinding or distilling grain, the best barley can be separated and sold for malting, and the thin grain sold or used for inferior purposes, and it will be noted as not being expensive when the screen will effectually separate the grain at the rate of from fifty to sixty bushels per hour.

The time and mode of cutting and harvesting differs from some kinds of grain in being depreciated by early cutting. It should always be allowed to stand until dead ripe if the grain is required for malting purposes, the corn will then become mellow and kind. A common rule as regards ripeness is indicated by a wrinkled and shrivelled appearance of the skin of the grain, when the ear droops pointing to the earth. The mode of cutting barley is generally by the mowing machine if it is intended to be carted as loose corn, and if the weather proves fine it is the better for laying a few days, as the dews at night time improve the malting quality. When, however, the crop is tied into sheaves and set-up in stooks it will not all suffer from wet weather, but when it lies on the swarth the whole of the grain is often discoloured. The thrashing and dressing of the crop is of consequence, and until the past few years barley was thrashed with the flail in some districts, and no doubt fewer broken corns occur in the sample than when thrashed by steam machinery, but the cheapness and expedition of the work done by the machine is so much greater that the old flail is now almost entirely thrown away and has fallen into disrepute.

WORK ON THE HOME FARM.

Horse Labour.—If any chalking is left undone it should now be attended to, and if no frost comes to shake the lumps, they should be broken fine into pieces about the size of a turkey's egg; the act of ploughing will then bury the chalk lumps, which it always ought to do, because any pieces left on the surface after cultivation will often become almost as hard as stones in consequence of exposure to wind and rain and summer sunshine. The horses will also be employed in ploughing and working the land for fodder crops, such as summer vetches with oats mixed, $1\frac{1}{2}$ bushel of vetches and 1 bushel of Black Tartarian oats per acre. When, however, the vetches are required for feeding dairy cows the seeding should be $1\frac{1}{2}$ bushel of vetches and 1 lb. of tall rape per acre. The rape holds up the vetches well

and proves one of the best fodder crops which can be given to dairy cows for the production of butter or milk to be sent to London or elsewhere. It is now a good time to sow *Trifolium* of the early crimson-blossomed variety, for although it is usual to sow this crop in the autumn, it is more certain to succeed when sown in spring, having then few or no enemies—such as slugs, &c. The land, however, will require to have been ploughed beforehand and settled-down close, then harrowed and rolled until perfectly fine. Then, at last, use the ring roller, sow the seed 20 lbs. per acre, and harrow-in with chain harrow. At eleven or twelve weeks end this crop will be a full one, especially if the land is in good heart and condition; if not, 2 cwt. per acre of nitrate of soda should be sown and harrowed-in at the time of seeding the *Trifolium*. As fast as this crop is cleared it may be sown for turnips, or with vetches and oats, or tall rape as above stated. We saw last October a splendid lot of fodder of this kind sown the first week of July. There is now plenty of work for the odd horse, and the employment will consist of carting couch or weeds to a heap, or on to pastures, carting hay, chaff, &c., to sheep in the field, roots to the cattle in the boxes and yards, and for breeding sows. Much odd work will have to be done if it is intended to keep-up a decent and cleanly appearance of the homestead.

Manual Labour.—This will consist of filling, and laying-out and spreading chalk, the women assisting in breaking the largest lumps. This will now be the best time of the year for doing any draining on the arable land, at least for setting-out the work, for any land that is in fallow if it requires draining the first drying winds in March will be sure to show the wet spots, and bird's-eye springs if any, for after the winter's rain the fine weather succeeding, the driest land will look white and dry, whereas the wet spots or parts will remain of a darker colour for a considerable period, and this enables the farmer or bailiff to set out the work with an exactness not so easily accomplished at other times of the year. The men may now proceed to cut the drains in order that the following work afterwards may be completed in time for the root or other crops to succeed the work of draining. The tiles for the work having been brought to the farm during the winter, the odd horse may now draw them to the field where they are wanted. The men who are in attendance upon the dairy cows, the fattening and store stock in the sheds and yards, will now be fully employed. The store pigs and breeding sows will require constant attention; the latter as soon as the young pigs are weaned should be turned into and fed with roots, &c., in a yard with hovel attached for shelter at night and in rough weather. The yard of any required extent should be fenced close with strong iron cattle hurdles, and may be littered with long dung direct from the stables, and in this way the accumulating dung will be well preserved, the pigs constantly treading it down and adding to its value by their own droppings and consolidating the mass, which would under other circumstances deteriorate by heating, &c. When the sows are about to farrow they should be moved to a comfortable pen for that purpose (and which will be described at a future time); here they remain until the young pigs are weaned, when they return to the open yard again, and we have always deemed this to be especially desirable, as they are found not to breed well and bring but few pigs at a farrow when kept in close pens without exercise, a certain amount of which we have found to be essential to the well-doing of all breeding animals.

THE PEACOCK.

It has always seemed strange to us that this magnificent and aristocratic bird should be so seldom seen. So glorious are its hues and so elegant its motions, that even people who may be utterly uninterested in ordinary poultry cannot fail to be fascinated with it. Not only when strutting on a terrace or spreading his tail is a Peacock a bird of beauty, but his flight too is light and graceful. We have often watched a large company of them at a farm near Oxford, glancing in the sun as they flew from stack to stack with the greatest ease. It is true that they are bad gardeners, but not worse than other kinds of poultry of less beauty which are tolerated; and doubtless many of our readers would sacrifice a few leaves and buds for the sake of such pets, or possess premises sufficiently spacious to afford ample room for the perambulations of a few Peacocks without allowing them in the region of the dressed garden. For those who are so fortunate we will give a few notes upon them.

The Peacock is a long-lived and hardy bird. The chicks may easily be reared under a Turkey hen among her own progeny, and will develop powers of flight with marvellous rapidity. They detest all restraint, and soon learn to perch on high buildings, and there defy winds and frost; still they may easily be tamed to extreme familiarity, and are not only companionable in life but if killed young are a lordly and delicious dish on the table. Of course they have their faults. Some old cocks become cruel; but, as with Turkeys, the produce of a cock known to be amiable should be sought for. Again, their voices are not generally thought melodious, though we never could dislike them, but always thought there was something charmingly and mysteriously weird in their

cry, and quite agree with Mr. Dixon, who says that only nervous and fastidious persons object to it.

For lovers of the rare and curious we will mention a few of the Peacock's varieties. The Common Peafowl (*Pavo cristatus*) is too well known to need any description.

The Pavo spicifer or Peacock of Java is by far the handsomest species we have seen. We suspect that this is the same bird as that vulgarly called the Japan Peafowl. There is a beautiful pair of them in the Regent's Park Gardens, which we saw last week in glorious plumage, in spite of their miserably narrow quarters. The neck of the cock is an indescribable mixture of sheeny gold and green, his head and face curiously parti-coloured with well-defined patches of rich yellow, blue, and violet, his back of glossy copper, each feather laced with black. The hen's general colour, unlike the sober tints of her common cousin, is the same golden green as that of the cock's neck; her head has likewise the same bright yellow patches, and both her flights and those of the cock are copper-coloured.

The Pavo nigripennis or Black-winged Peafowl is a native of Sumatra. The common Peafowl is least gaudy in its wings, which are of brownish grey hues not unlike those of the hen Pheasant; but this bird excels in this very point, his wings being of a glossy black shaded with Prussian blue.

Then comes the White Peafowl. In this bird certainly some of the Peacock's peculiar glory is lost; still its white is a singularly pure white, and the eyes of the tail are like glistening gold. By far the best specimens of the variety we have ever seen were those of the Vatican. It may not be uninteresting to relate that the Pontiff who has just gone to his rest was very fond of his poultry and Pigeons. We had the privilege once of spending an afternoon in his gardens, to our mind the most perfect in Europe for their varied charms, and of being shown all the birds. At the end of the great terrace, which runs at right angles to the galleries and looks down upon the sunken gardens, is a grille gate; hither the Pope often walked in former days, and latterly was carried in his chair. On each side were high-domed aviaries full of Ring-doves, Jacobins, and Fantails. Through the gate was the great poultry yard, a truly royal one, and a perfect paradise for its inmates, planted entirely with grand and luxuriant orange and lemon trees, among which a perfect troop of white Peacocks, Guinea Fowls, and other poultry desported themselves. A fountain played in a central pond, wherein white Chinese Geese and other fancy waterfowl revelled.

Lastly, the Pied Peafowl is, of course, a crossbred bird between the latter variety and one of the coloured birds. In our opinion it loses the beauties of both parents. If these stray notes should tempt anyone to go more deeply into the fancy of this gorgeous habitant of the east, and to study its sub-varieties, we shall be truly glad.—C.

VARIETIES.

WE have received a copy of Messrs. J. K. & R. R. Fowler's *Descriptive Catalogue of Prize Poultry and other Pedigree Stock*, which embraces all the best breeds of poultry, ducks, geese, turkeys, pigs, and cattle. When we state that the owners of the Prebendal Farm, Aylesbury, have since 1871 carried off as prizes 104 silver cups, 358 first prizes, 276 second prizes, 179 third prizes, and over 600 high commendations, we need not say more as to the quality of the stock these gentlemen supply.

THE agricultural schools for improvement which were established on trial in Nassau, Germany, some ten years ago appear to have been a great success. In the winter of 1869 only nine schools were in existence, in 1870 the number had increased to ten, in 1871 to forty-two, in 1874 to ninety-one, and in 1876-7 to ninety-two. Last winter these schools were attended by 1457 pupils, of whom 1830 were between fourteen and twenty years of age, 94 between twenty and thirty, and 33 more than thirty years old. The teachers are paid according to results, which are tested by periodical examinations made by appointed inspectors.

AN American writer concludes an article on strikes and restricting the hours of labour as follows:—The loss of so many hours of daily labour is just so much loss of real property in the world, and so long as the workman lives he is just as much a loser as is the capitalist who employs him. Unreasonably high wages are as reactionable as any other extreme. Could organised strikers compel capital to pay more than their labour was worth, the workman would not be long in finding out, by the increase of his butcher's and grocer's bills, that he had only had his labour for his pains. All associate interests to be lasting must be upon an equitable basis. The bargain that is one-sided and unreasonable can never be made permanent. The laws of compensation are inevitable. Justice will assert itself at last. There is a third silent partner to every bargain that was ever consummated.

WITH forty-seven millions of arable acres at command, the population of Great Britain and Ireland is largely dependant upon foreign supplies for daily food. The extent of this dependence is not generally understood; but last year Great Britain expended for foreign food no less than £96,879,000. The year

before the money paid for similar articles amounted to £87,129,000. So in one year there is an increase of hard cash paid away to foreign lands of nearly ten millions, or there was within a few hundred thousands of an increased outlay of ten per cent. These startling facts are surely enough to make everyone pause to consider what we are doing at home to allow this outlay to be possible. Freetraders have said over and over again that such an expenditure is the best thing that could occur, as the money is scattered abroad in new countries, and new markets are created. But it seems to us that if a large share of this ninety-seven millions sterling had been earned by the agricultural labourers and tenant farmers of Great Britain for subsequent distribution by them equal markets would have been created at home, and the manufactured articles thus in increased demand at home might have been supplied at a less cost for carriage.—(*Irish Farmer's Gazette*.)

A CORRESPONDENT of the *New York Tribune* gives the following results of experience in ploughing:—1, Plough only when the ground is dry enough to leave it mellow. 2, Plough so as to leave the upper or richer element as Nature does, at the top. How can deep furrows be made without leaving the upper surfaces at the bottom? Use the subsoil plough, and you are all right; when the soil is deep, deep ploughing will do, and it will do with heavy surface-manuring. The nearer the surface the fertilisers are, the better the crops will be. I have had good crops of corn with late fall ploughing, and in spring spreading and harrowing in the manure. Many farmers think the manure lost by evaporation unless it is pretty well buried, but if too deep nothing but a miracle will raise it.

CLOTH FROM FEATHERS.—A new industry is said to be extending rapidly in Paris: it consists in the manufacture of a cloth five times lighter and three times warmer than wool, from the feathers of domestic and other birds. The material is waterproof and takes dye readily.—(*Journal of Applied Science*.)

IN the London hay markets prices for good meadow hay were dearer on Saturday last, while straw was rather lower. Prime clover 100s. to 134s., inferior 85s. to 95s.; prime meadow hay 85s. to 96s., inferior 70s. to 80s.; and straw 44s. to 53s. per load.

AMONG other disadvantages, says the *Agricultural Gazette*, which a warm winter brings with it is the too rapid growth of turnip greens. Swedes that have been left unpitted have made alarming progress during the last fortnight, and there seems to be a good chance of their deteriorating sadly in quality, unless steps are taken to check their advance. Such a season as the present teaches that swedes, which must be fed off late, ought to be pitted if it is desired to realise their full value. If it is inconvenient to pit swedes, running may be checked by giving each root a shake in the ground, and the same effect might, we think, be produced by removing the mould-board from a plough and running the share in a line just below the roots.

THE history of Peruvian guano, says an American contemporary, is an interesting one. None was brought from the granitic rocks of the Chincha Islands to Europe for trial till 1840, when twenty casks were imported into Liverpool. The next year the shipments amounted to several cargoes. The exclusive right of digging and shipping guano for the term of nine years was sold at this time by the Peruvian and Bolivian Governments for the sum of 40,000 dols., but the contract was soon after repudiated by the former, as the increasing demand for the article developed the immense value of the deposits, which lie to the depth of 50 or 60 feet. The accumulation of the three hundred years preceding 1804 having formed only a few lines of this thickness, the monopoly was soon revived, however, the Peruvian Government confining the exportation and sale to a single house in London and another in New York. Upon the Chincha Islands it was estimated that there were 57,000,000 tons of guano.

WINTERING BEES.

AN experience of many years has satisfied me that no degree of cold ever encountered in this country is prejudicial to bees during the winter provided their hives are dry in the interior. In the winter of 1860-61 my bees were exposed to thorough ventilation. One colony was in a box of inch deal 11½ inches square inside by 9 inches deep. It was exposed to the full rigour of the season, with an aperture 4 inches square open in the crown board, and with the entrance of the full width, so that the external air circulated freely through the hive. The box itself was painted, but had no kind of external cover or protection. The rain and snow were kept out by a simple sloping loose cover fitting loosely on the top of the hive, which was situated in the open garden.

At the end of January I found that breeding was going on in spite of this free ventilation. I pursued this system of thorough ventilation until the winter of 1875, and never lost a single stock except by lack of food. Wooden hives properly ventilated seem to me quite equal to those made of straw. In 1863 I obtained a frame hive from Mr. Woodbury made of yellow pine. This hive has been almost constantly tenanted winter and summer up to the present time, and is now practically as good as ever.

Some time afterwards Messrs. Neighbour & Son began making square straw frame hives, and I obtained several of them, hoping to find them superior to wooden boxes as winter domiciles for bees. Year after year I worked them side by side, but could not perceive that the straw had the slightest advantage over the wood. During winter both were equally dry if ventilated, and during the spring, after the ventilation had been stopped, the condensation was quite as great in the corners of the straw hives as of the wooden one. All my bees are now domiciled in wooden hives, though I have several good straw frame hives in my loft.

At present I am trying the system advocated by Mr. Abbott. The slides of my Stewartons are withdrawn, and the crown boards of frame hives removed in November, and the hives are covered with two or three thicknesses of carpet during winter and spring. Boxes thus treated are, I find, perfectly dry during the winter, and almost equally so in the spring; but when the population is rapidly increasing in March and April with warm days and cold nights, a little condensation takes place in the corners of square hives, which is nearly or entirely avoided in octagon boxes. When the quilt is used as a winter cover it is essential that the exterior of the hive should be thoroughly ventilated, so that the vapour rising through the carpet can be carried off at once. If the hive is covered with a close-fitting top, or if any impervious substance is laid on the top of the quilt, condensation takes place and the carpet becomes mouldy and saturated with moisture.—J. E. BRISCOE, *Albrighton, Wolverhampton.*

THE INTRODUCTION OF THE LIGURIAN OR ITALIAN BEE INTO ENGLAND AND GERMANY.

(Continued from page 160.)

"In September of the year 1853," continues Dr. Dzierzon, "the fourth meeting of the German bee-keepers was to be held in Vienna. While preparations for this meeting were going on I was asked to send there some empty Mobil hives (hives with moveable combs), as well as some colonies occupying hives of this kind which at that time were but little known; and when I was required to state the price, I requested that a stock of Italian bees might be sent me in exchange, adding that in my humble opinion it would not be impossible to overcome the difficulties of transportation from Mira near Venice to Silesia, *via* Trieste and Vienna. Some time after this I received a letter from Vienna advising me that the desired colony had arrived there and had been delivered to the railway company to be forwarded to me. This joyful message, however, was succeeded by days of anxious waiting—a snowstorm had stopped the traffic on the railroad. I sent to the station at Brieg every day, and I made inquiries by telegraph, but was unable to learn anything of the whereabouts of the stock. At last when I had got tired of sending to the station the stock was delivered at my house. In the evening of the 12th February, 1853, it stood in my sitting-room, and to my agreeable surprise it was safe and sound.

"The ständer hive in which they arrived, and which was about 3 feet high and made of boards scarcely an inch thick, was placed upside down, and the ends of the combs which were somewhat inclined over each other were found to be united by the bees to one another so firmly that it was not easy for the combs to have got damaged. The first sight of the bees was a great surprise to me. I had not expected to find such a difference and such beauty of colour. I also very soon noticed their gentle disposition combined with extraordinary activity. About the beginning of March, when the ground was still partially covered with snow, and my other stocks gave no signs of activity, yet the Italian bees were busy in the hazel bushes, and they got on exceedingly well notwithstanding their having been thrown back a little by being removed into a Mobil hive—a spacious Lager stock. As soon as I noticed drone brood in the hive I caused the bees to rear young Italian queens, and thus obtained twenty-seven pure Italian colonies. I might have obtained a far greater number even in the first year, but to my not exactly agreeable surprise all the drones were suddenly driven out of the parent hive about midsummer, this being probably the time when the drones are killed in Italy. I now left the stock undisturbed, and it completely filled its spacious hive with comb and became so heavy that it required the greatest exertion to lift it. In the following year when I had a larger number of parent hives at my disposal the increase was of course much more rapid, and I was enabled to send a good many small colonies as well as fertile queens only to every part of the country. I have no doubt that at the present time the Italian bee is known and cultivated in most parts of Germany where bee-keeping is practised.

"The introduction of the Italian bees into Germany may justly be regarded as an event of great importance. It has awakened and increased the interest taken in bee-keeping, and prepared the way for a great advance in the theory as well as in the practice of bee-culture. Without the Italian bees bee-keeping would not possess half its charm—to me, at least, it would not. To watch the beautiful Italian bees, especially the first generation of a young queen, playing in bright sunshine is a most interesting

sight to me of which I never get tired. But what interests us most is that the Italian bee, compared with our common grey bee, allows us to make many observations, such as on the duration of life of bees, the origin of drones, &c., and it has been the means of clearing up almost all the formerly disputed points respecting the propagation of bees. If the great authority on bees, Baron von Ehrenfels, had been acquainted with the Italian bees and had made experiments with them, he could not possibly have expressed the opinion that worker bees, if not accidentally dying a violent death, might attain the age of a queen bee, and consequently live four years or longer. At present it is known to everyone who has had an opportunity of introducing Italian queens into stocks of common bees at different times of the year, that worker bees may live six months and longer during the time of rest in autumn and winter, but in the busy time of spring and summer their strength gives way so quickly and their wings become so worn out that they do not live beyond two months. Twenty-five years ago people had not yet settled the question as to the origin of the drones. From the fact that worker bees in hives where they have no queen in the course of time begin to lay eggs, which, however, produce drones only, many bee-keepers supposed this also to take place in hives where the queen is alive and well, it being inconceivable to them that one and the same queen should be capable of adapting the sex of the eggs to the cells. Even Baron von Berlepsch was for a long time of this opinion. But after I had sent him two Italian queens in the autumn of 1853, if I am not mistaken in the time, and when he saw Italian drones appear in the hives to which those queens had been introduced as early as March in the following year, he became convinced that the theory which I advocated was the right one, the queen being the mother of all the bees in the hive, male as well as female. My theory about the drones, according to which they proceed from unfertilised eggs which leave the maternal ovaries capable of developing into male bees or drones, has also been confirmed by the yellow Italian bees, in so far as the drones always belong to the race of a pure mother, no matter whether she has been impregnated by a yellow or black drone, a mixing of the races being noticeable among the female offspring only, because the latter can only be produced from fertilised eggs. By means of the Italian bees it was also strikingly illustrated by Von Balenstein that the old queen if still alive, which was doubted by many bee-keepers, leaves the hive with the first swarm, for after a first swarm and a second and third swarm had issued from his Italian stock the pure Italian offspring were propagated in the first swarm only, whereas a mixed offspring appeared in the parent hive and in the second and third swarms, because the young queens had been impregnated by drones of common bees, which existed in greater abundance than the Italian drones.

"The progress in the theory of bee-culture which had been so much advanced by the Italian bees could not, of course, remain without influence on practical bee-keeping, the former surely being the foundation of the latter. A more correct theory could not therefore but be followed by a more judicious practice. But directly even the introduction of the Italian bees has had a favourable influence on the practice of bee-keeping, because these bees are not only prettier in outward appearance, but they possess qualities which make them a valuable acquisition for practical purposes. It was said at the last annual meeting at Linz that the irascibility of the common bees, which often actually degenerates into a rage to sting, would be sufficient to disgust people with bee-keeping, and it was also asserted and proved that the Italian bees are less inclined to sting, which certainly is a decided advantage; although, on the other hand, it has been mentioned that the Italian bees sting very sharply. This statement may be correct as regards some variety received from other parts of the country (Italy), or having more German than Italian blood in its veins, but it is not applicable to the bees which I received from the neighbourhood of Venice. As the uniformly-coloured grey bee has peculiarities of its own as regards inclination to swarm, differing in the heath districts from other parts of Germany, it is possible that the yellow bee from different parts of Upper Italy and from Italian Switzerland may also possess peculiarities as regards inclination to sting.

"The greater bravery of the Italian bees in defending their stock against thieves and robbers is undisputed, and their indefatigable industry in gathering honey is universally known. What Virgil says of the superior gold-coloured bees as to their gathering plenty of honey for their owner remains true at the present day, after a lapse of nearly two thousand years.

"The Italian bees have been reproached with changing their queens more frequently than the black bees do, and during the first year after their introduction I think I myself made similar observations, which I ascribe to premature breeding. But since the Italian bees have become acclimatised, in consequence of which my bees at present do not expel the drones earlier than other bees do, I do not find the least difference between them and black bees as regards the commencement of breeding and the change of queens. During last spring and summer I did not lose even a single queen.

"A certain able bee-master considers it a great advantage

that the queen bee of an Italian colony is so easily distinguished from workers by her golden colour, no difficulty being experienced in finding her. In practice this is indeed of no small value, as it is frequently necessary to remove the queen, or at least to become convinced of her being alive. How much time do we not often waste in looking for the queen, and yet how frequently do we overlook a small queen, scarcely to be distinguished from a common bee, and uselessly sacrifice the most valuable queens, not noticing our mistake until, perhaps, it is too late to save the colony. But a pure Italian queen is discovered at a glance, even by persons with weak eyes. Searching for the queens of Italian stocks is moreover much facilitated by their remaining quite tranquil during operations, often even continuing to deposit eggs in the cells of a comb which has been removed from the hive, whilst the black bees, which shun the light if operations are not performed very cautiously, generally run away into the most distant corner of the hive and thus necessitate the removal of all the combs. In an Italian colony, especially if the bees are no longer quite pure, a change of queens may generally be noticed immediately by the colour of the young bees, and thus we may convince ourselves of the presence of a strong young queen in the hive without any examination at all.

"It is a well-known fact that the introduction of the Italian bees has been followed by the introduction of other varieties, such as the Carniolan, Egyptian, Grecian, Asiatic, and recently the Cyprian bees. The Carniolan bees are perhaps as good-tempered as the Italian bees, but in the production of honey, which after all is the main point, they are greatly inferior to the Italians. The Egyptian bee is only of scientific interest; in practice it is of no value whatever in our country, because as Vogel and Hilbert have shown, it breeds continually, even in winter, and therefore it winters badly. On the Cyprian bee I am unable to give an opinion, not having made any experiments with it. The opinions as to its value are still at variance, directly opposite views being held as to its irascibility. Should the Cyprian queen bees throughout be of rather a dark colour, like the one mentioned at the meeting in Linz, which had been born with shorter wings and yet became fertile, and on which a good deal of discussion took place. This certainly would be a slight disadvantage in them, otherwise they are splendid bees and have lately been very much praised. I stick to my gold-coloured Italian bees which I received twenty-five years ago, because from the results of my long experience I consider them, with Virgil, the kind of bees which yields the largest harvests of honey.—(Signed), Dr. DZIERZON, Carlsmarkt, 1st December, 1877."

BEE STING.

I HAVE found out a very simple remedy for the sting of a bee. It is an ointment made of soap and honey, spread on a piece of lint or linen, and laid on the part stung. I assure you the effect is marvellous. I suffered such intense agony after having used ammonia, and my hand and arm from the tips of my fingers up to my shoulder swelled to such an alarming size, that I determined never to use that remedy again, and, besides, the irritation was intense. The other day I was stung on the cheek and tried the soap and honey. The cheek and eye became swollen, but not much, and there has not been the slightest irritation.—F. RAMMELL.

SPRING WORK IN THE APIARY.

OWING to last year being unfavourable for bees it is probable that many hives are in a weakly state at the present time. Weak hives are those that have but few bees, for though strong hives may have eaten most of their winter supply of honey we do not call them weak or consider them in a weakly condition. The bees of strong hives may approach the point of starvation and be saved from feeling their need and danger by the administration of food in sufficient quantity. When strong hives die it is generally owing to either the ignorance or inattention of their owners. With weakly hives the case is different; sometimes they will "go off" under the greatest care and skilful treatment. The best doctor is often baffled with cases of patients whose constitutions are bad. I had a letter from Scotland two or three days ago in which the writer says many hives there have already died. The accounts I receive from English apiarists are rather unfavourable; death is reducing the number of their stocks. Owing to the very unfavourable weather last year, especially in the autumn, bees did not breed well, and, moreover, ceased breeding at an unusually early date, hence the scarcity of bees in many hives now.

The question of what is the best way of managing weak hives is a natural one, and forces itself on the attention of bee-keepers after unfavourable seasons. There are two ways of treating weak hives in early spring. One is to unite two of them, making one good hive. If the hives to be united stand side by side the union may be easily and safely effected. Our mode of proceeding has been stated in this Journal. As two or three good hives do more work than half a dozen weakly hives, and scarcely require any

attention, we strongly recommend winter or early spring unions. These should be effected before queens commence laying. The other mode of treating weak hives is good and gentle nursing, and this means keeping the hives well and warmly covered and feeding the bees with good syrup in small doses. The bees of weak hives cannot cover or hatch much in March and April, and can do but little work outside. Poverty of strength and means places people as well as bees at a great disadvantage; poverty is always heavily taxed. Probably one-third of the hives of England and Scotland will be lost by death during the next two months. We advise bee-keepers generally to examine their stocks carefully; hives with only two seams of bees, and some with three small seams, should be marked for union with other weak hives. If unions are not resorted to, then let the bees of weak hives be carefully nursed with a view to obtain an early hatch or two of brood, and thus save them from extinction.—A. PETTIGREW.

OUR LETTER BOX.

FOWLS TRESPASSING (Amateur, N. B. R.).—You cannot legally either shoot or poison them. Give your neighbour notice in writing that unless he keeps his poultry at home you will sue him for the damage they do. If he afterwards does not keep them from trespassing sue him in the County Court.

CLOSING FIELD FOR HAY (W.).—Your gardener is right, and especially if you graze the land with sheep and horses, which bite very close to the ground.

AMATEUR SMOKING HOUSE FOR BACON, &c.—"R. R." would be much obliged by a plan or description of a small smoking house.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1878.	Baromet- ter at 32° and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.				
Feb.		Dry.	Wet.			Max.	Min.	In sun.	On grass			
We. 20	Inches.	deg.	deg.	S.W.	deg.	deg.	deg.	deg.	deg.	In.		
Th. 21	30.267	43.6	42.3	N.W.	42.7	46.3	38.2	62.3	35.7	—		
Fri. 22	30.581	42.1	41.1	N.W.	42.8	55.0	37.6	64.1	31.0	—		
Sat. 23	30.632	48.4	46.9	N.W.	43.9	50.5	41.6	53.3	39.1	—		
Sun. 24	30.421	47.6	45.0	W.	44.2	50.3	45.1	71.5	41.4	—		
Mon. 25	30.236	44.8	43.3	N.W.	43.9	51.1	40.9	75.1	37.1	—		
Tue. 26	30.121	45.5	43.2	N.W.	44.0	54.2	42.1	90.5	38.2	—		
Tu. 28	30.096	48.3	45.9	W.	43.6	54.3	41.0	74.3	36.3	—		
Means	30.336	45.7	43.9		43.6	51.7	40.9	73.0	36.9	—		

REMARKS.

20th.—Dull but fair morning, few drops of rain at 9.30 A.M.; continued dull all day; fine night.
21st.—Bright sunny morning; rather cloudy in afternoon.
22nd.—Cloudy dull day throughout.
23rd.—Cloudy morning; sunny and bright afternoon.
24th.—Foggy and dark morning; sunshine at noon; fair and pleasant the rest of the day.
25th.—Fair day, rather cold wind, fine sunset, starlight night.
26th.—Dull morning, but fair pleasant day; slightly windy.
27th.—Fine week. High barometer, westerly wind, uniform temperature, and no rain.—G. J. SYMONS.

COVENT GARDEN MARKET.—FEBRUARY 27.

OUR Market remains the same, with no alteration except in hothouse Grapes, which are a point higher.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.		
Apples.....	1	sieve	2	6 to 8	Melons.....	each	0	6 to 8	0		
Apricots.....	dozen	0	0	0	Nectarines.....	dozen	0	0	0		
Chestnuts.....	bushel	10	0	20	Oranges.....	100	3	0	10		
Currants.....	1	sieve	0	0	Peaches.....	dozen	0	0	0		
Black.....	1	sieve	0	0	Pears, kitchen.....	dozen	1	0	3		
Figs.....	dozen	0	0	0	dessert.....	dozen	3	0	12		
Filberts.....	1	lb.	0	6	0	Pine Apples.....	1	lb.	6	5	
Cobs.....	1	lb.	0	6	0	Plums.....	1	sieve	0	0	0
Gooseberries.....	1	bushel	0	0	0	Raspberries.....	1	lb.	0	0	0
Grapes, hothouse.....	1	lb.	4	12	0	Walnuts.....	bushel	5	0	8	0
Lemons.....	100	6	0	10	9	ditto.....	100	0	0	0	0

VEGETABLES.

		s.	d.	s.	d.		s.	d.	s.	d.	
Artichokes.....	dozen	2	0	10	4	Mushrooms.....	pottle	1	6	10	2
Beans, Kidney forced.....	100	2	0	3	0	Mustard & Cress.....	punnet	0	2	0	4
Beet, Red.....	dozen	1	6	3	0	Onions.....	bushel	2	6	3	6
Broccoli.....	bundle	0	9	1	6	pickling.....	quart	0	4	0	0
Brussels Sprouts.....	1 sieve	2	6	0	0	Parsley..... doz.	bunches	2	0	0	0
Cabbage.....	dozen	1	0	2	0	Parsnips.....	dozen	0	0	0	0
Carrots.....	bunch	0	4	0	6	Potatoes, frame.....	1 lb	0	6	2	0
Capsicums.....	100	1	6	2	0	Potatoes.....	bushel	3	6	7	0
Cauliflowers.....	dozen	2	0	4	0	Kidney.....	bushel	5	0	7	0
Celery.....	bundle	1	6	2	0	Radishes..... doz.	bunches	1	0	1	6
Coleworts..... doz.	bunches	2	0	4	0	Rhubarb.....	bundle	0	6	1	0
Cucumbers.....	each	1	0	2	0	Salsify.....	bundle	0	9	1	0
Endive.....	dozen	1	0	2	0	Scorzonera.....	bundle	1	0	0	0
Fennel.....	bunch	0	3	0	0	Seakale.....	basket	0	9	2	0
Garlic.....	1 lb.	0	6	0	0	Shallots.....	1 lb	0	3	0	6
Herbs.....	bunch	0	2	0	0	Spinach.....	bushel	2	6	4	0
Lettuce.....	dozen	1	0	2	0	Turnips.....	bunch	0	3	0	4
Leeks.....	bunch	0	2	0	0	Veg. Marrows.....	each	0	0	0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	MARCH 7—13, 1878.	Average Temperature near London.			Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h.	m.	h.	m.	h.	m.	h.	m.			
7	TH	Royal Society at 8.30 P.M.	49.5	32.7	41.1	6	34	5	48	7	10	7	54	3	11 13	66
8	F	Queckett (Microscopical) Club at 8 P.M.	49.7	31.7	40.7	6	32	5	50	7	24	11	7	4	10 58	67
9	S	Royal Botanic Society at 3.45 P.M.	49.9	31.2	40.4	6	30	5	52	7	42	morn.		5	10 43	68
10	SUN	1 SUNDAY IN LENT.	50.1	31.7	40.9	6	27	5	54	8	8	0	22	6	10 27	69
11	M	Royal Geographical Society at 8.30 P.M.	49.4	30.2	40.7	6	26	5	55	8	44	1	35	7	10 11	70
12	TU	Royal Medical and Chirurgical Society at 8.30 P.M.	50.7	32.3	41.5	6	23	5	57	9	34	2	41	8	9 55	71
13	W	Society of Arts at 8 P.M.	50.8	31.2	42.5	6	21	5	59	10	41	3	35	9	9 30	72

From observations taken near London during forty-three years, the average day temperature of the week is 50.0°; and its night temperature 31.5°.

TEA-SCENTED ROSES.



SETTING down to write about Tea Roses a man feels, or should feel, how difficult a task he has set himself; and feeling as I do my incompetency to handle the theme, yet also feeling that no one can love them more or can have paid more attention to Tea-scented Roses, I venture to offer a few remarks upon these lovely flowers.

I must own at the outset that I do not know that much fresh information can be given about them, for the simple reason that I know of no good new sorts. Marie Guillot, which is a comparative novelty, is almost worthless when grown out of doors. A grand grower, having most ornamental foliage, it only lacks strength to open its intensely double buds. Under glass I should expect this Rose to be almost perfection.

The older sorts still hold their own, and I see no chance of these being supplanted. Catherine Mermet, Marie Van Houtte, Madame Bravy, Devoniensis, Comtesse de Nadaillac, David Pradel, and the three Souvenirs d'Elise, d'un Ami, and de Paul Neyron, with Madames Willermoz and Trifle, Belle Lyonnaise, Jean Ducher, and Rubens, are the cream of the lot. Sometimes Homère may give you a fine bloom, but rarely, very rarely, one good enough for a stand. Niphotos, Boule d'Or, Madame Jules Margottin, and Reine du Portugal are too uncertain to depend upon, and Madame Margottin so rarely attains to good form that no dependance can be placed upon her to give a good bloom.

Of the Noisettes Maréchal Niel, Triomphe de Rennes, Céline Forestier, and Madame Caroline Kuster are the best, and always some good blooms may be gathered in the early summer and autumn from these, but to the best of my experience rarely from out of doors will they give you blooms for the great Rose shows. Cloth of Gold now and then, but at rare intervals, supplies me with a grand bloom, but it is a hundred to one that you get one for a show. Rêve d'Or, though very beautiful as a climber, has never substance enough for the exhibition; and the same may be said of another good variety—Solfaterre. Lamarque is a most useful climber, and quite distinct from all others. Of the Gloire de Dijon family Belle Lyonnaise is by far the best, and Madame Trifle comes next; but now and then the old Gloire gives us an astonishing good bloom.

The best stand of Teas that I saw during the year was that of Mr. Mitchell's of Piltown Nurseries at the Crystal Palace; the next best that of Messrs. Curtis & Co.'s at Exeter. The amateurs, however, showed remarkably well, particularly at Torquay, the National, and the Aquarium. At the Crystal Palace there was no class for amateurs for Teas—a great omission which I trust will be remedied next year. These flowers have been shown in better form this year than I have ever known them. The demand for Teas is so great that the nurserymen in England are unable to supply nearly enough.

Their cultivation is most easy; all that they require is a light rich soil, a sunny situation, and plenty of liquid manure. They do not, however, live long, and require

frequent renewing. I find it best to move them every year, examine their roots, and plant them in fresh soil. Unless this is done, the long tap roots throw up such innumerable suckers that the plants are impoverished.

Late pruning of a very slight character is what the plants require; but if the wood has ripened badly I find it best to remove it entirely, even though the blooming season may be deferred till the autumn, or even till another year. It is not at all a bad plan to tie a piece of bast round such blooms as Souvenir d'Elise and Niphotos to prevent the wind knocking the petals to pieces.

Earliest to bloom and the latest to depart the Tea Rose is invaluable in our gardens. It is indeed perpetual, and far more valuable for a garden flower than the Hybrid Perpetuals.—WYLD SAVAGE.

PROPAGATION BY CUTTINGS—HINTS TO LEARNERS.

THE first thing necessary for successful spring propagation is the possession of clean and healthy stock plants, and this leads me to say that half the so-called diseases of plants are greatly aggravated, if not brought about, by the unreasonable way the stock is wintered.

All softwooded plants should be continually growing at least a little if they are to be kept healthy; rapid growth is not to be encouraged during dark and cold weather, but if a plant which is not deciduous or very succulent remains for months, or even weeks, without progressing it is of necessity going back. Take Verbenas, for instance: these are often crowded by the score into a small pot and placed on some dry shelf exposed in turns to wind and sun, fire heat, and something akin to freezing. They become hard and tough so that little seems to hurt them, and when potted-on and placed under favourable conditions they supply a good few cuttings. But does anyone suppose that plants reared from such a stock produce as good results as the progeny of plants which have been treated in a rational manner? I say, No. One good healthy plant at this time of year which has never been stunted is worth a hundred of starvelings, and the only way I know to keep stock plants healthy through the winter is by allowing moderate root-room in autumn and treating them like live greenhouse plants.

I certainly know of no purple bedding plant yet which is superior to Purple King Verbena when it is well managed; but starve it either in winter or summer and it is a miserable failure. When well grown each plant of this variety is capable of covering 2 square feet by the autumn, and while it grows it flowers, but the moment it ceases to grow either from crowding or starvation it begins to go back. I do not recommend planting it 2 feet apart in the beds. My plants are large and strong when put out; they are placed about a foot apart, and every other plant is cut away carefully and invisibly by degrees, so as to keep the ground always covered and yet allow continuous development. There should not be an insect or a spot of mildew on the plants when they are put out, or failure will be almost a certainty. The soil should not be over-light nor over-rich,

but about the medium in both respects. A little manure water will be very beneficial after the plants have been flowering some time, and every flower should be picked off as it is fading, or seed will be produced in great quantity and debility will follow as a matter of course.

A propagating house has no advantages over any other warm house for striking most of the common bedding plants. The principal object to aim at is a tolerably even temperature somewhere between 55° and 75°; and for most small cuttings, such as *Verbenas*, *Petunias*, *Lobelias*, *Heliotropes*, &c., moderate light without direct sunshine, such as is afforded close to the north side of a low wall, is the best. The kinds of cuttings I have named, too, are the better for double covering—*i.e.*, they should be covered by a handglass or small air-tight frame in addition to the roof of the house.

The simplest and I think the best propagating frames are merely boxes with panes of glass laid on the top. I use nothing else, and I propagate several thousands of plants annually. My boxes are 2 feet 8 inches long and 1 foot wide; a portion of them are 8 inches deep, the others are 5 inches, and the glass is in two or three equal lengths. From 2 to 3 inches of rather light soil is placed in the bottom of the box rather firmly. I do not often use sand, but it is safer for beginners to use a little, spreading it about an eighth of an inch thick over the soil and making it even with a piece of board. If the cuttings are taken from a warm place, the soil in the boxes should be allowed to become warm also before they are inserted. It is best not to water, unless the soil is dust-dry, till after the cuttings are in and the box is placed where it is to remain, when it should have a copious supply from a fine rose, if sufficient to last till the cuttings are struck all the better. Only a few cuttings should be taken off at a time, and they should not be allowed to droop at all; for although they may afterwards strike root they will be longer about it, and will not be so even in growth as if they had never drooped. *Verbenas*, *Cupheas*, *Iresines*, and some others will strike root equally well from any part of the stem, and therefore to cut them at a joint is a waste of time and material; but most plants strike best when cut just below a joint.

The more leaves there are left on a cutting, provided it can be kept from flagging or damping, the sooner it will strike root. I do not mean that a large cutting with numerous leaves will strike quicker than a small one, but that if two cuttings are alike when taken off the plant, and one of them has more leaves left on than the other, the one with the greatest leaf surface, other things being equal, will be likely to root first. If flagging takes place, however, the results will be probably reversed. The base of the cutting should be made to rest firmly on the soil at the bottom of the hole (therefore it is best not to have the dibber too much pointed; it should be slightly larger in diameter than the cuttings), and the sand and soil should be gently pressed around the stem, leaving the cuttings perfectly upright with the leaves clear of the surface.

As I said before, all my small cuttings are inserted in boxes. The work is done under the roof where they are to remain. Each box as soon as it is filled is placed in position, well watered, and immediately covered with glass as nearly air-tight as possible. If the boxes are placed on the floor, not too close to the hot-water pipes and out of the reach of the sun as mine are, the glass will not require lifting even for a moment till the cuttings are struck. No dew is created where there is no fluctuation of temperature, and there is very little on the shaded part of the floor of a house, also there is little or no evaporation so long as the cuttings have no roots and they are closely covered, hence no necessity for watering or wiping the glass. Even cuttings of such as *Tree Carnations*, which take from a fortnight to three weeks to strike, do not require the glass to be once lifted till roots are emitted, then air is given very gradually, shifting the glass about a quarter of an inch at first, and in the course of two or three days taking it off altogether. If the house in which they are situated has to be ventilated during the day, it is best to commence airing the boxes in the evening after the house is closed, and gradually inure the tender plants to the air contained in the house before admitting them to taste the smallest whiff of the natural atmosphere untempered. If it is necessary to shift the boxes to another house or pit after the glass has been removed entirely, it is advisable to cover them from the direct outside air, be it ever so warm, while shifting them. Of course, many of the precautions I have recommended are not necessary when the season is more advanced and cuttings can be struck almost

anyhow, on a dung bed or even a window-sill. There are many who ridicule the idea of giving so much attention to little matters at any time, but such people are not found among the most successful cultivators; these find that their success mainly depends on attention to little matters.—**WILLIAM TAYLOR.**

VEGETABLE CULTURE.

CHAP. X.—THE PARSNIP.

THE Parsnip is a native of England, and is one of the most nutritious vegetables grown in our gardens. Some think that it succeeds best in a rich sandy soil, but the fact is it will succeed in any kind of soil provided it is not less than 18 inches deep. We have had as fine Parsnips out of a clay soil as any other kind; but what we most prefer is a soil which shows neither a predominance of clay nor of sand. In preparing the ground for Parsnips it should be trenched to its full depth of soil, whether that be 18 inches or 3 feet. Ground which was trenched and manured for the previous crop need only be turned over with the spade to prepare it for the Parsnips, and no manure should be given, as it sometimes causes the roots to fork and prevents them from being clean and straight.

The seed may be sown at any time from the middle of February until the middle of March, but it should not be sown later than this to secure a full-grown crop, although useful small roots are produced from seed sown so late as the end of April; but we never as a rule like to be later in sowing than the first week in March. Drills 1½ inch deep and from 15 to 18 inches apart should be drawn for the seed. As the plants will ultimately be thinned-out to 10 inches apart, the seed need not be sown along every inch of the row, but three or four seeds may be placed at every 10 inches. Less seed does in this way. After the seed is covered and the surface of the ground is made level with a rake, no further attention is wanted until the plants are quite visible above ground, when the Dutch hoe must be run through amongst them. The young plants should not be thinned until they are from 2 to 3 inches high. When the seed has been good and sown as directed they will come up in tufts. In thinning at first two plants should be left together, and when they are from 4 to 5 inches high the smaller of the two may be drawn out. This will leave the permanent crop in a good growing position.

About the beginning of November many of the leaves will decay, and it is just at this time that the crowns of the roots often decay also. This is about the only disease which affects the Parsnip. When the leaves are allowed to lie and rot on the crowns they can hardly escape decaying, but by clearing the leaves away, say once a week, during the time they are decaying, not one root in a hundred will rot at the crown.

In localities where the winters are severe a quantity of the roots should be lifted in November, be laid in an open shed for a few days afterwards to dry, and then be stored like Carrots amongst sand in a shed or cellar. If this is done carefully the roots remain as good for some months as if they were in the ground, but where there is not convenience to store them properly the best plan is to leave them in the ground; indeed, although we have storage room very often the roots are not lifted until the month of February, when it is necessary to clear them off to make room for other crops. Of course, a few should always be lifted when there is any indication of sharp frost or snow, as it is difficult to get the roots out of the ground then. When seed is bad and only a patch comes up here and there, the blanks may be filled-up by transplanting, as Parsnips when 3 or 4 inches high may be transferred from one place to another and do well afterwards. Work of this kind should only be done in showery weather in April or May. The two varieties of Parsnips best worth cultivating are *The Student* and *Hollow Crown*.—**A KITCHEN GARDENER.**

CULTURE OF MIGNONETTE IN POTS.

I HAVE at the present time in the conservatory four pots of *Mignonette* 4 feet 3 inches in diameter, and nearly 4 feet high. The plants were in full bloom three weeks before Christmas, and show no signs of going off yet. My treatment of them was as follows:—I sowed the seed in pans on the 1st of March, and kept them in the vinery until the seedlings were large enough to be shifted into 60-pots. I then moved them into the Peach house, giving them another shift when the roots reached the sides into 32-pots. When the weather was suffi-

ciently settled I placed them out of doors and shifted them lastly into their blooming pots (10-inch).

I found one or two things to be of the greatest importance—viz., never to let the plants get root-bound until before they are shifted into their blooming pots; to look them over daily to pinch out the blooms and to destroy the green caterpillars, which, if left unmolested for a short time only, will do much damage. The plants must be moved into the greenhouse before the first frost, and when the blooming pots are full of roots they should have manure water twice a-week. The soil I used was two parts loam and one part leaf soil.—F. JORDAN, *The Hill, Willey.*

SPARMANNIA AFRICANA—ANTS.

A CORRESPONDENT of your Journal remarks that the *Sparmannia africana* is useless as a bouquet flower. I have now in a room on the mantelpiece a large piece of it which is just going off; it was cut ten days ago, the buds having expanded in water, and the leaves are perfectly fresh. When in London bunches were often sent which remained quite good for a week. Mine I brought from Mentone, where it grows in large shrubs in the gardens.

Are the small black ants wrong in a conservatory?—[No, they are enemies of aphides.—EDS.]

DUKE OF BUCCLEUCH GRAPE.

As I have had much to do with this Grape I have been very much interested with the discussion on its merits and demerits which has lately taken place in your columns. I must say I never have been extraordinarily successful in its culture, but at the same time I believe I have been more fortunate than many with it. With me it has always had a tendency—I may say a strong tendency—to make wood, if I may call it so, only like an outside shell, all the rest being soft pith. I have seen wood of it which came from Clovenfords exactly corresponding with this. So that it is not solely with me its wood is formed of this unsatisfactory description.

Next there is not one shoot in six which it produces that shows a bunch. Some seasons it will only show a few, and in others not one. When the bunches are in their embryo state they sometimes promise to be very large, but it is a long time before the individual blooms are formed, and when these are visible it is observable that in six cases out of ten the bunches are blind at the point, only a few flowers about the shoulders forming berries. Again, in many instances only about half of the berries swell to their normal size, the other half only reaching half size, or often not that. Before they are fully ripe it is a most difficult matter to prevent all the finest of the berries from splitting, and if they do not do this there is still the small black spot which disfigured the Golden Champion so much to spoil their appearance, as there can be no denying that the Duke spots like the Champion, and the finer the berries the more they show it.

The only difference I have ever been able to see between these two Grapes is in the form of the berry. In habit of growth, manner of fruiting, and in general character in every respect, and particularly including blemishes or diseases, they are identical so far as my observation goes, and I know a good many have from experience arrived at the same conclusion.

I have endeavoured without prejudice to describe the true character of the Duke of Buccleuch Vine, and it may be inferred that the treatment necessary to grow such a variety successfully must be very particular, if not peculiar; and to my discredit be it said, after growing this Grape from its first appearance in public, I can tell no more now about what treatment will insure its perfect development than I could before I knew it. What is the good of me writing about it, then? Simply this, I know many blame their gardener for not being able to manage this Grape, and it is quite time it was definitely known that it is solely the fault of the Vine itself.

It may now appear that "COLUMBUS" has discovered the right way of growing it, and according to his ideas "steaming, damping, and syringing" are the blunders gardeners submit it to, and therefore failure is the inevitable result. But to show that this is not the "grand secret" I was fortunate enough to see the Duke at Clovenfords a week or two previous to Mr. Barron's visit in 1872, and I have no hesitation in saying it was splendid—much better than I ever saw it at any subsequent visit, and at that time the Duke was frequently

completely syringed overhead in the afternoon, and it was then bearing it with impunity, although the fruit was maturing fast; and it must be understood that this was no ordinary syringing, but a thorough washing by a great pressure of cold water through an indiarubber pipe, which I should imagine to be quite equal to syringing, steaming, and damping combined. But I do not think that one instance of managing a Grape well is a sufficient warrant to recommend it in such a paper as the *Journal of Horticulture*, nor do I think that having it fine in 1872 has anything to do with what it is now. We can remember how eagerly we went to Dalkeith to see the Champion and the sensation it made in London, but what can be said of its general condition now?—MARKET GARDENER, N.B.

FLOWER SHOWS AND JUDGING.

THE *Journal of Horticulture* is proving a good medium for Rose-growers generally, and exhibitors just now in particular, to discuss their grievances, &c., and well do they avail themselves of it; but have exhibitors in other classes no grievances to relate or suggestions to make before all the schedules are arranged for another season? I venture to answer in the affirmative, especially with regard to the fruit and vegetable classes. The plant-growers no doubt have their grievances, which ought always to be listened to, and where possible remedied, as on them depends in a pecuniary sense the success of most shows; however, growing exhibition plants is not in my line. To me, and I believe the majority of gardeners, the fruit and vegetable tent has always the greatest attraction. Here occasionally is to be heard much cavilling about the judges' decisions, &c.; in some instances, perhaps, with good cause, in others from purely imaginary wrongs. Englishmen are proverbially a grumbling race, and gardeners especially so, and I for one should like to have a grumble at a few apparent inconsistencies.

Why do not local societies when arranging their schedules take a pattern from the Royal Horticultural Society, and modify the prizes offered to suit the funds of their respective societies? The above Society offers prizes for two bunches of Grapes instead of three, and so good an example ought to be followed by large and small societies. It is especially commendable to those who from necessity offer very small prizes; for instance, "three bunches of black Grapes, first prize 10s.;" and, what is still more inconsistent, a "collection of fruit, ten dishes, two of Grapes allowed, the others distinct, first prize 20s.;" and a dish of Grapes, "to consist of three bunches," is the rule. I do not grumble so much at the amount offered as I do at the quantity required. If smaller quantities could be staged employers would have less cause to grumble, and the gain in the number of competitors would fully compensate for the reduction. If funds are low why offer prizes for single dishes at all (this remark applies more especially to the vegetable classes)? but substitute two collections of fruit, and also vegetables, to suit the class of gardeners in the locality; one for the "big guns," the other for the lesser growers.

Flourishing societies and companies might also take a lesson from the Royal Horticultural Society in the matter of staging collections of vegetables. Why insist upon trays when the vegetables would look so much better arranged upon plates? The latter plan is a great saving to exhibitors, and entails but little extra outlay on the part of the society. At some large shows near London plates are provided, and at the same time fine collections of vegetables are to be seen huddled into trays, and some with each variety partitioned off, after the pattern of a nail box.

Do societies when they offer prizes for collections of vegetables consider that every variety staged should be "in season?" If so they ought to intimate as much, and thereby prevent apparently unfair decision. At all events, until such a rule exists I do not consider that the judges are justified in taking little or no notice of Brussels Sprouts, Parsnips, Celery, Cardoons, &c., in September. The exhibitor stages them, thinking he has done well by so doing; but I know of instances where the judges thought otherwise, and awarded the prizes accordingly.

Judges also appear very inconsistent at times, awarding prizes to vegetables in some classes that the exhibitor would not think of sending in for his employer's table. "Mammoth" Cauliflowers always appear to be in favour in the exhibition tent, but not in the dining room. This was at one time the case with Cucumbers; now we have gone to the other extreme. Some first-prize Cucumbers that I saw last year appeared to

me to cut a poor figure alongside other better-looking but unnoticed specimens. I do not advocate specimens with the "handle" ripening before the point is fully grown. I simply say to judges, Do not go to the other extreme when judging simply because you have previously awarded prizes to monstrosities of the Marquis de Lorne type and are now convinced of the error of your ways.

I hope also to see a reformation in judging the Pine Apple. Why is there not a class for heavy specimens similar to that for Grapes? Too often overfed and overgrown specimens are placed before smaller and better examples—better because not grown out of character, and with more regard to the quality, which those overgrown fruits in my opinion sadly lack.—ESSEX EXHIBITOR.

JUDGING ROSES.

IT seems after all that there is no great difference of opinion about Rose-judging, with the exception perhaps of the plan proposed by Mr. Curtis, and we may all shake hands over it. I was glad to see Mr. Baker's remarks, and the only point in which I differ is with regard to knowing the names of the persons to which the Roses belong. I am in favour of open judging. Those who are at all familiar with the exhibition tent generally know by the writing on the cards of the names of the Roses, by the mode of setting up, or one thing or another, to whom the principal stands belong; and I think it would be far better to have open judging, and to try and secure only the services of those judges who are not biased by the names. My friend the "HEREFORDSHIRE INCUMBENT" does not like a code of rules issued by the National Rose Society to regulate judgment. I agree with him so far; no code of rules would do away with a judge's idiosyncrasy, nor do I think it would be wise to do so; but I certainly object to the names of judges being published under the idea that exhibitors should try to please the taste or fancy of the leading spirit among the judges. We all owe much to our veteran Macenas, certainly no one more than myself, in the matter of developing tastes and judgments with regard to Roses.

I cannot quite agree with Mr. Baker that only exhibitors are qualified as judges. Many like myself are, owing to soil, climate, and position, unable to take part in the leading south of England and Midland Rose shows as exhibitors with any chance of success, and do not care about figuring as champions in merely local country shows; and, though it may be somewhat the exception, there are many men of critical taste and accurate judgment, men, too, who can decide quickly and firmly, who have neither time nor means to exhibit, but who yet would be competent to act as judges. I am always in favour of three judges, and that certainly one should be a regular exhibitor and versed in the character of the new Roses as far as possible, in order to help to detect duplicates. There may be cases where duplicates are purposely placed in a stand, but in many instances it happens from carelessness or the similarity of the sorts, and I have often heard exhibitors and their assistants when staging their blooms ask whether this bloom is so-and-so or so-and-so, and the answer has been, "Oh, it is so very like, it will do." Close observers of the habits of growth, wood, foliage, shape of petal, &c., are not easily deceived, but when judges have to go over several stands of seventy-two or forty-eight trebles, it is not very easy to carry the eye from one corner of a stand to the other; and unless there has been a glaring error purposely committed, I would always give an exhibitor the chance of changing a disputed bloom.

I am apparently in the minority of one with regard to allowances for distance and travel. I would not, of course, allow a damaged stand to win over one that was uninjured, but, *ceteris paribus*, if the Roses had in themselves been intrinsically much better—and judges can generally tell both what has been and what will be—I am in favour of making the allowance for the superior stamp of blooms. My friend Mr. Pochin has often well explained it to me when he has said, "This might have been that, but that never could be equal to this." A small highly-coloured bloom half open will often attract the attention both of judges and bystanders, which in three or four hours of a hot tent will show that after all it was only a second-rate bloom. I can well remember one day, when judging with the Rev. Reynolds Hole at South Kensington, our having some doubts between the merits of two particular stands of Tea Roses, and he turned to a rosarian who happened to be passing, and he said, "Oh! I like that stand the best, they are much

more suited for the button-hole," upon which, when our friend was gone, we laughed and said, "Well, that helps us to decide the question, we must certainly give it to the other stand."

I am now brought to the question of Teas. Let them stand on their own merits, they generally have classes of their own. When well grown they are beautiful, and when put in merely because they are Teas to vary a stand they often help to break a stand down; and many a time at our principal shows at South Kensington, Crystal Palace, and elsewhere, the worst and least interesting stands have been Teas and Noisettes.

After all, in spite of the "HEREFORDSHIRE INCUMBENT's" warning of "*Quieta non movere*," I am inclined still to think a code of rules, not so much to tie or discipline judges as to regulate the public taste, issued by the National Rose Society would do good, and it would also be well if the same Society would give definite hints to exhibitors as to the time allowed for staging and clearing the tents, &c., and not to allow some exhibitors to go on arranging stands and coming in long after the time specified. No doubt there are difficulties at times about the distances boxes have to be brought and the unpunctuality of trains, but in such cases the secretaries ought to have notice beforehand, and the boxes should be arranged as far as possible before starting, so that but little should be required; but, as a rule, the exhibitors close at hand are the worse sinners, who try to stage all they can and make up their 48, 36, 24's, &c., after they get into the tents, when they have looked at other stands to see their comparative weakness or strength. An exhibitor tries to make up a 48, finds he is deficient, then changes it into a 36 or a 24, as the case may be, and is constantly moving his Roses from one stand to another, and when the time comes to clear the tent is still undecided. We certainly want the bump of order and punctuality more enforced, and exhibitors should not be allowed to place their boxes on the stage (unless the places are previously allotted) till they are quite finished. The final touches, which many exhibitors think help to guide the judges' opinions often lead to the errors of duplicates. I have known an exhibitor pretend to have left a budding knife under his stand, in order that he might come in to have a final finger in his box, and at minor shows blooms are borrowed from each other without apparently any compunction; but this, of course, deals with another and a wider subject. I remember, however, distinctly last year at a local show, after the judging was over, a lady saying to her gardener on going round the tent, "I did not think, B, we had a *Maréchal Niel* out." "No," was the answer; (*sotto voce*), "it was given to me this morning." I wish therefore the National Rose Society would not only submit some rules as to the points of merits in Roses, but help to give some hints to secretaries and committees as to the insurance of order, punctuality, and perfect honesty in exhibitors. As I said before, so I am still inclined to think—the real difficulty is not as to the laws or judges in the larger exhibitions, but as to the obtaining of qualified judges in the local shows. There are not, after all, many men able to form accurate and quick judgments, and I can certainly endorse Mr. Baker's concluding remark, in hoping that the best Roses may always win.—C. P. PEACH.

I HAVE read with great interest the discussion carried on in your columns during the last few weeks on this subject, some of which I am sorry to say I consider very impracticable; but of late the discussion has assumed a more practical form, and I allude more particularly to the excellent article in your last week's issue written by Mr. Baker, with whose remarks, with one or two exceptions, I entirely concur.

The first great secret undoubtedly is to appoint competent judges, and the men most qualified to judge Roses are practical Rose-growers; and managers or secretaries of provincial shows would do well to keep this in view. With all due respect to men who are most able general gardeners, I submit that unless they be practical Rose-growers as well they are not the men to judge Roses. During the last ten or twelve years I have been a very successful exhibitor of Roses, but during that time I have frequently fallen a victim to incompetent judging. I entirely agree with Mr. Baker in his suggestion of counting the strong and weak points in rival stands, for in nine cases out of ten that will satisfactorily settle the matter; condition as to general effect, brightness of colour, good foliage, &c., of course being taken into consideration. With respect to size, I think it ought to have a more prominent position than Mr. Baker gives it. I am quite ready to admit that a small good Rose is much better than a big bad one; but a big Rose that is not coarse and overblown is better than a little one.

During this discussion we have frequently had Paul Neyron quoted as the coarse type of Rose, which it undoubtedly is, and such Roses as Paul Neyron, Antoine Mouton, and a few others I could mention never ought, in my opinion, to be in a stand of Roses at all.

Again, as to Teas. Much as we value and admire them, particularly in large stands, it is absurd that they should receive any favour simply because they are Teas; the best blooms presented to the judges, be they Teas or Perpetuals, ought to win.

The last and most knotty point Mr. Baker touches upon is the duplicates, which at times will greatly puzzle both exhibitor and judge. The wood and foliage will in some cases decide the matter, but in others it will not; and a judge before he decides to act on such evidence ought to be very sure he is right. But in all such cases as these it would be well if some means could be devised of calling the exhibitor's attention to it and give him a chance to clear up the doubt. We are all liable to mistakes, and it is hard to have a good stand of Roses thrown overboard on such mere quibbles; for of all the thorns in the flesh of the rosarian defective judgment is the worst to bear. In conclusion, I am sure I only echo the opinion of all honest and conscientious Rose exhibitors when I say, Let us have Rose-growers for Rose judges, a fair field and no favour, and let the best man win.—W. NICHOL, *Drinkstone Park, Bury St. Edmunds.*

I QUITE agree with your correspondent "M. N. R. S." in failing to see why the points and point-card system advocated by "H. C." should be simply impracticable and a Quixotic idea. Surely "H. C." advocates the use of point cards only in cases of very close competition, and not that they should be dealt out to every Rose in the show, but to those closely competing stands the number of points of which must be taken down. I think the act described by him of placing the point card by each Rose as it is judged may be done as quickly and perfectly as it can be written down, which we have often been obliged to do very imperfectly on the backs of letters, &c.—R.

ROYAL HORTICULTURAL SOCIETY.

MARCH 5TH.

For the first time during the present year the meeting was held in the conservatory, and a brilliant day and many valuable collections of plants, also excellent contributions of Apples, Grapes, and Potatoes, rendered the gathering a very successful one. Plants were staged by Messrs. Veitch, Williams, Wills, Osborn & Sons, and some excellent groups from private growers.

FRUIT COMMITTEE.—Henry Webb, Esq., V.P., in the chair. Mr. Joshua Atkins, gardener to Col. Loyd Lindsay, Lockinge Park, Wantage, sent three bunches of Black Alicante Grapes in fine condition. They were much admired, and received a cultural commendation. Mr. Mowbray, gardener to the Earl of Leven, Fulmer, sent three bunches of Alicante, but they were not so large as the former though in excellent condition. G. F. Wilson, Esq., sent a fruit of Theobroma Cacao, the seed of which produces the cocoa and chocolate of commerce. The fruit is like a short thick Cucumber; and the specimen was sent from Trinidad to Mr. Alfred Barret, Weybridge. A letter of thanks was awarded. Mr. Mowbray, gardener to the Earl of Leven, also exhibited a dish of Mushrooms well grown, for which a letter of thanks was awarded. Mr. Francis Dancer, Little Sutton, exhibited heads of the old Late Purple Cape Broccoli, a valuable hardy variety now very rare. It was a remarkably fine stock, and a letter of thanks was awarded. A very fine collection of Apples and Potatoes came from the garden of Mr. W. E. Hubbard of Leonardslee, Horsham. The former were in a very perfect state of preservation, and appeared as fresh as if they had just been gathered from the tree. Much credit is due to Mr. Ford, the gardener, for the way in which these were exhibited, and a silver medal was awarded to them.

FLORAL COMMITTEE.—Dr. Denny in the chair. The collection of Messrs. James Veitch & Sons consisted of a gorgeous group of Hippeastrums in a great variety of colour, also of a mass of the valuable Early Gem Rhododendron, lifted from the open ground the day previously. The Rhododendrons were surrounded with densely-flowered examples of the charming forcing shrub Spiraea Thunbergii, which was figured in our columns on page 181. Amongst the more striking of the Hippeastrums was Leopold, vermilion, one-third of the petals being tipped with white. Some of the flame-scarlet varieties were also intensely rich. A silver medal was recommended.

A similar award was voted to Messrs. Osborn, whose collection was composed chiefly of Palms intermixed with bright variegated-foliaged plants, the whole affording evidence of superior cultivation.

Mr. Wills's group was arranged in a free and artistic manner,

and the effect produced was excellent. The groundwork was composed of small Ferns and Lycopods, out of which sprung in a semi-natural manner such choice Orchids as Phalaenopsis Schilleriana, Odontoglossums Alexandrae and cirrhosum, Dendrobium Wardianum, Dendrochilum glumaceum, &c.; at the back were Azaleas under a canopy of Palms. A large silver medal was recommended for the group.

Mr. Williams staged a very beautiful group. A collection of Hippeastrums contained some extremely bright varieties, notably Aurora, intense blood red; Prince Arthur and Victorine were also very bright. A fine pan of Primula denticulata attracted much attention on account of its superior culture. A pan of Anemone fulgens was also very attractive. Mr. Williams also exhibited a few Orchids, also plants of his new seedling Azaleas of the Amœna type, to one of which, Wm. Carmichael, a first-class certificate was awarded. In colour it is purplish pink. The other varieties—Princess Beatrice, rosy lilac, and Mrs. Carmichael, rosy purple, were also exhibited. These are as free in flowering as A. amœna, but have much larger flowers and must be regarded as great acquisitions for early decorative purposes. A silver medal was recommended for the collection.

Messrs. W. Paul & Son exhibited ten boxes of cut blooms of Camellias in fifty varieties. These produced a most beautiful effect. The boxes of Fimbriata, Imbricata, Alba plena, Bealii, Princess Charlotte, white; Manara, soft scarlet, massive; Fatima, rose and white; Marie Louise, blush; L'Avenir, rose; and many others were excellent; and very beautiful were the plants of the white variety Ninfa Egeria; it is very free, and a great acquisition.

Mr. Aldous, florist, Gloucester Road, South Kensington, staged an attractive group composed of Lilies, Tulips, Azaleas, Palms, &c., and was awarded a vote of thanks.

A very fine group of Cyclamens was staged by Henry Little, Esq., Hillingdon Place, Uxbridge. Some of the darker varieties were extremely rich, especially one or two which were violet shaded with carmine. Some of the carmine selfs were also very superior, while the whites were pure. Mr. Little also sent a small group of Hippeastrums. A vote of thanks was accorded.

The most beautiful group, however, in the conservatory, although a small one, was contributed by Sir Trevor Laurence, Bart, Burford Lodge, Reading. The plants, which were composed of small Ferns, Isolepis gracilis, and grand Orchids, were arranged on the surface of a tub containing a large Araucaria, the Orchids depending also from the stem of the tree. The topmost plant was a floriferous specimen of Dendrobium litiflorum, beneath which D. Wardianum was still more striking by its hundreds of flowers. O. Alexandrae was represented by grand spikes, and the brilliant Sophronitis grandiflora had very large flowers. A splendid variety of Odontoglossum Rossii major was included in the group, and for which a cultural commendation was awarded. This beautiful group commanded much admiration, and the Committee recommended that a Lindley medal be awarded. The plants were grown by Mr. Spyers. H. G. Elliott, Esq., The Crescent, Doures Park Road, Clapton, staged three excellently flowered plants of Odontoglossum cirrhosum, for which a vote of thanks was awarded. Mr. R. Parker, Tooting, exhibited remarkably fine flowers of the sweet and beautiful hardy aquatic Aponogeton distachyum, also some early-flowering Megaseas (Saxifrageas).

Some beautiful hardy Primroses were exhibited. The one exhibited by Mr. G. F. Wilson at the last meeting named Scott Wilson was on this occasion awarded a first-class certificate. It is highly distinct, being of a violet plum colour with a sulphur eye. It is pin-eyed, but cannot fail to be valuable both for decorative purposes and as a parent for future beautiful varieties. Mr. Wilson also exhibited a flowering spray of Rhododendron præcox superbiens.

Mr. R. Dean had a similar award for a variety named Octoroon, intense velvety maroon with yellow eye; the petals are of good substance and very glossy. Also for Ealing Crimson, magenta-crimson, with yellow eye; a stout good flower. Mr. Dean also exhibited Chieranthus mutabilis, raised by Rev. Harpur Crewe. It is very distinct and peculiar on account of its variable flowers. Mr. Harrison Weir exhibited a pale blue Polyanthus, Blue Beauty, which is very pretty. B. Hook, Esq., Bridgefield, Reading, exhibited cut flowers of several varieties of Hellebores. They were very beautiful, and merited the vote of thanks awarded. Mr. Charles Turner, Slough, exhibited cut flowers of his new Tree Carnation, A. Alegatière. They were very bright and sweet. This will prove one of the most valuable of the class to which it belongs on account of its dwarf habit and free-flowering property. Messrs. Paul & Son, Old Nurseries, Cheshunt, exhibited flowers of the green-flowered Rosa viridiflora, also of the Galician Rosa Mundi, also a salmon sport from the double Azalea imbricata. Col. Trevor Clarke exhibited a plant of Ornithogalum narbonneense, a very pretty border plant. Messrs. Veitch & Sons had a botanical commendation for Epidendrum Wallisii, a singular species from New Grenada. They also staged Odontoglossum Jenningsii and a few other novelties, the most striking of which was Hippeastrum Sir Garnet Wolseley, vermilion-scarlet with greenish centre. Mr. J. J. Bowie, gardener to the Earl of Sandwich, Hinchbrook, Huntingdon, exhibited very fine Neapolitan Violets.

Mr. Ivory, Dorking, exhibited a seedling *Kennedy*, named *Iveryana*. The colour is a rich violet blue and is very effective. A few Orchids and some good varieties of *Imantophyllum* miniatum were sent from the Society's gardens at Chiswick.

Prizes were offered by "an amateur" for the best light and dark seedling *Amaryllises*. The first prize for light varieties was awarded to Mr. B. S. Williams for Mrs. Rawson, a variety with scarlet petals margined with white. A first-class certificate was also awarded to the variety. The second prize was withheld. Mr. Williams was awarded both the prizes in the class for dark varieties, first with *Fairstar*, a pure scarlet variety, the colour being continued to the base of the petals, which were of good substance, the flowers being medium-sized; and second to *Prince Teck*, vermilion crimson, the base faintly tinged with green, a small flower but very rich.

A self-acting ventilator termed the electric automatic ventilator was exhibited by Mr. W. Symonds, Guilsborough, Northampton. The model was ingeniously devised, and appeared to work smoothly and well. As soon as the thermometer attached reached a given point an electric current set the machinery in motion and opened the ventilators.

LECTURE ON THE FIG AS A STANDARD.—At the afternoon meeting, which was held in the conservatory, and was presided over by Lord Alfred Churchill, after Dr. Hogg had remarked on the subjects which had been submitted to the Fruit Committee, and Mr. Jennings had referred to some of the plants exhibited, Col. Trevor Clarke proceeded with the reading of the paper that he had prepared on the above subject. He first referred to the zone of Fig culture as standards in England, which was restricted to the seacoast and sheltered districts of the south. He had an impression, however, that the Fig was amenable to this mode of culture over a wider area of the country, and five years ago he tried the experiment with a tree of *White Marseilles* and one of *Brown Turkey*, which he planted in the open garden—a walled enclosure. The district he described as being in the centre of England, the soil being strong loam approaching to clay. So far from the position having special climatic advantages, the lecturer remarked that the reverse was so far the case that Peaches, Nectarines, and Apricots could not be relied on for producing crops on the walls, which in general were total failures. Yet the standard Fig trees ripened their crops perfectly, and in favourable seasons the wood was well matured, only the tips of gross shoots having been slightly injured by frost. Exposed trees of the varieties named produced crops quite equal to trees trained against walls; and his experience with other varieties led him to believe that a Fig orchard intelligently managed in the London district is an experiment well worthy of being tried. He referred to the sturdy short-jointed wood of standard Fig trees, which he attributed to a more equable temperature than prevailed near the surfaces of walls, also to the fuller exposure to the air all round, not in front only, of the branches. After referring to the different modes of pruning the Fig the lecture, which was listened to with much attention, was brought to a close. The acoustic properties of the conservatory are, however, not good, and the remarks of the several speakers were only imperfectly heard by a large number of the audience.

Sixteen new Fellows were elected during the afternoon.

NOTES AND GLEANINGS.

A MEETING of the General Committee of the NATIONAL ROSE SOCIETY was held at the Horticultural Club on Tuesday last, the Rev. A. Cheales in the chair, when the schedules as already arranged by the Executive Committee were adopted and ordered to be printed. They are of the most liberal and varied character, and it may fairly be anticipated that the Exhibition at the Crystal Palace will surpass in interest even that held at St. James's Hall. There will be two classes of subscribers, some at £1 and some at 10s., with corresponding privileges. The accounts for 1877 were finally accepted, and measures were adopted for the purpose of increasing the number of members, which it is hoped all lovers of the Rose will help forward. The rules for judging were considered and approved, but before finally submitting them they will be considered at another meeting. The greatest unanimity prevailed, and all seemed anxious to make the Society what its name professes it to be—the National Rose Society.

—As an instance of the mildness of the season several RHODODENDRONS in Sir Henry Peck's garden at Wimbledon House are flowering as freely as we usually find them in May. They have a striking effect in the pleasure ground. They are chiefly varieties of *Nobleanum*, and are represented by both light and dark colours.

—ALLUDING to the longevity of RASPBERRIES, "A KITCHEN GARDENER" states, in reply to "D. Deal," that he knows a place where many acres of wild Raspberries have

grown on the same ground for nearly a century, and they produce better fruit now than many he has seen in gardens.

— "R. M. A." has forwarded to us a flowering spray of the GHENT AZALEA EXCELENTE to show how charming it is both by its purity of colour and pleasant fragrance. Our correspondent informs us that his plant, which is nearly 3 feet in diameter and about the same in height, is extremely beautiful. These Azaleas, he remarks, continue in beauty much longer when made to flower early in the season than they do when they expand under the hot sun of late spring or early summer. We have forced this variety, which was raised by Mr. Van Houtte, and have proved its great value, as we have that of many others, for decoration in early spring. A. pontica var. Excellente has pure white flowers, the upper lobe being very pale yellow. The trusses and flowers are medium-sized, and the plant is very floriferous.

—A CONSIDERABLE number of Orchids are now flowering in Lord Lonsborough's celebrated collection at Norbiton. *Odontoglossums* are represented by *O. sceptrum*, distinct by its fimbriated sepals and lip; *O. Hallii*, very fine; *O. triumphans*, *O. Cervantesii*, *O. Andersonianum* (true), and finer than are many forms under this name, *O. hystrix alba* Dennisoni, *O. Roezlii*, several good examples of *O. Alexandræ*, also of *O. cirrhosum* just expanding. Amongst the *Dendrobiums* we noticed *D. speciosum*; *D. Wardianum*, a very fine variety just expanding; *D. crassinode*; *D. primulinum*, very chaste; *D. Boxalli*; *D. heterocarpum*, primrose-coloured and scented; *D. thysiflorum*, and the Australian species *D. Kingianum*, small, porcelain blue; and the singular Cobweb *Dendrobium teretifolium*. Just fading is *Cattleya Trianae Russellianum*, which is perhaps the richest of the section; and there are also some pleasing varieties recently sent home by Mr. Bull's traveller, Mr. Shuttleworth. *Helsia sanguinolenta*, a singular Orchid having a lip like the pretty aquatic *Aponogeton distachyon*, attracts notice, as also does the small and rare *Ornithidium coccinea* with its small coral-red flowers. *Epidendrum purum* when viewed at a distance almost resembles the Meadow-sweet. *Cypripedium hirsutissimum* is distinct and very fine, and *Dendrochilum glumaceum* is elegant and sweet. *Phalenopsis Schilleriana*, *Cymbidium eburneum*, *Phaius grandiflorus*, *Celogyne cristata* and its variety *Lemoniana*, and the small and bright *Oncidium cheiroporum*, the Wallflower *Oncid.*, also contribute to the early March display.

—As bright spring flowers for greenhouse and conservatory decoration the LACHENALIAS are well worthy of general culture. The most striking display that we have seen of these flowers is at Wimbledon House, and the mode of growing them adopted by Mr. Ollerhead is highly worthy of notice. They are grown in baskets, in the same way that *Achimenes* are often seen. The baskets are lined with moss and filled with soil. As the work of filling them proceeds during the summer bulbs of the *Lachenalias* are embedded in the moss, about two hundred of them being placed in each large wire basket. The baskets are kept moist by being dipped as required in a tank, and in due time an effect as novel as it is beautiful is produced. The growth of plants in the baskets is such as to resemble in form a candelabra, and the hundreds of spikes of orange-and-scarlet flowers show to great advantage at this period of the year. This mode of growing *Lachenalias* is within the reach of all having a greenhouse, and as suspended floral ornaments we do not know anything to surpass the brilliant baskets in question.

—A CORRESPONDENT asks if varieties of CYCLAMEN PERSICUM come true from seed. If they do, he considers it is just to award certificates to seedlings of superior merit; but if they do not, he fails to see the equity of honouring the *Cyclamens* while seedling *Cinerarias*, herbaceous *Calceolarias*, and *Pelargoniums* are precluded from receiving similar honours. We shall be glad to receive information as to the "fixity" of *Cyclamens* by seed.

CYPRIPEDIUMS AND THEIR CULTURE.

CYPRIPEDIUMS, or the Lady's Slippers, are amongst the most curious and useful of Orchids. They are valuable on account of the long time they keep in bloom; in fact, a good collection furnishes flowers all the year round. The length of time the flowers keep after being cut is remarkable. I have known flowers of *Cypripedium insignis* continue fresh for two months when placed in water in a room. *Cypripedium barbatum* and its varieties last fully three months in flower.

Cypripediums are natives of several countries, including

India, Mexico, Switzerland, North America, Java, and several others. Several valuable hybrids have been raised of late years in England, one of which is figured; it was raised by Mr. Dominy, who obtained it by crossing *C. Pearcei* and *C. caudatum*. Considering the wide geographical range of these useful plants a selection can be made for the garden, intermediate house, or stove, according to choice or convenience.

Cypripediums are easily propagated by root-division. Hardy sorts require a compost of turfy peat, loam, and charcoal, with a good mixture of broken potsherds, and a little sand well incorporated. They should have a cold frame to protect them from the heavy rains and frost.

Intermediate sorts require nearly similar compost, adding a little chopped sphagnum moss. *C. insigne*, *C. villosum*, *C. ve-*

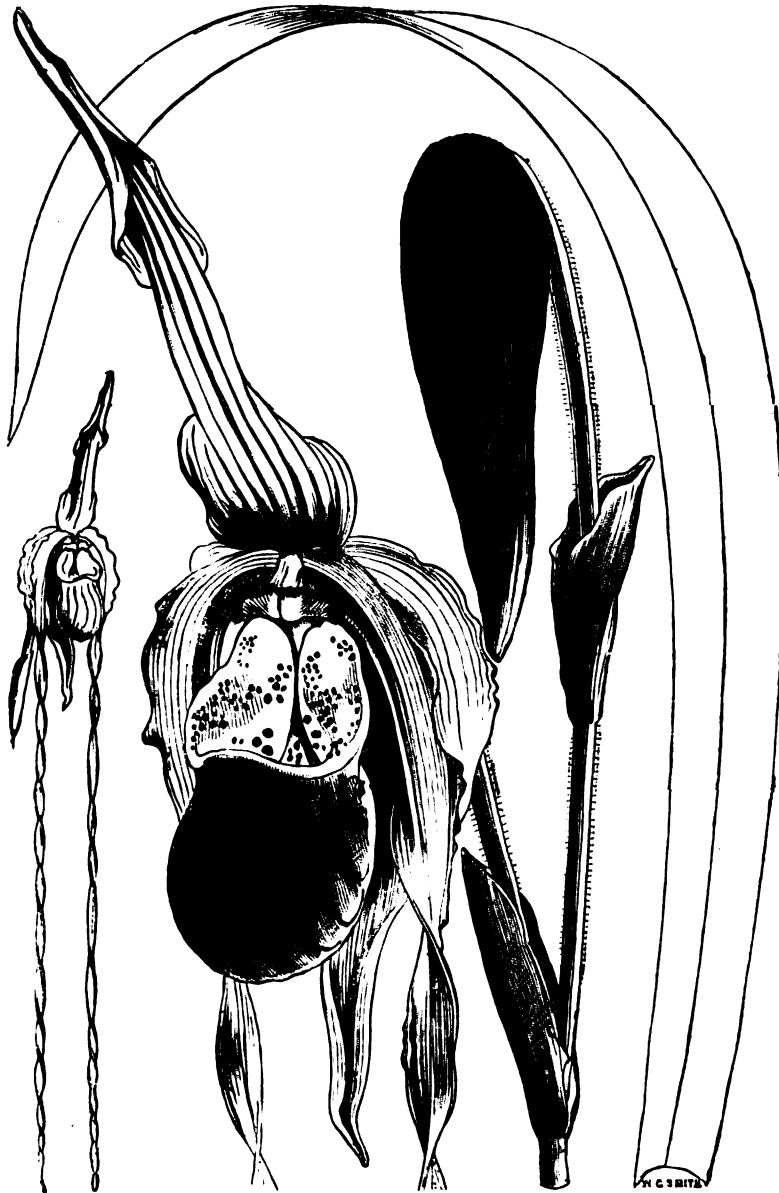


Fig. 28.—*CYPRIPEDIUM DOMINIANUM*.

nustum, &c., belong to this section and require a temperature not below 40° and not above 55° by fire heat; air should be admitted freely on all mild days.

Stove Cypripediums require a compost of sphagnum moss, charcoal, fibrous peat, a very little loam, and broken potsherds, mixed well together; the sphagnum moss should be cut up with a pair of shears. In potting, the crowns should be kept an inch or two above the top of the pots, the surface being rounded to give a neat appearance. The pots for all kinds should be filled three parts full of crocks.

The plants require a liberal supply of water, but the chill should always be taken off it before using. They do not require syringing during the winter months, but in spring and summer they should be syringed lightly twice a-day and have a

good watering twice a-week. When the plants are in flower support the flower stems by thin green-painted stakes. Such Cypripediums as *barbatum* can when blooming be taken out of the stove and be placed in the conservatory, where the flowers, being shaded and receiving more air and less moisture and heat, will continue in beauty much longer. *C. niveum* can likewise be taken out of the stove when in flower. *C. Lowii* should not be taken out, nor should the newer sorts, for they nearly all require heat.

In selecting Cypripediums care should be taken to choose those most likely to be of most use for the cultivator. If an Orchid house is provided it will be more easy to select, and the new varieties should be included; but those most likely to give satisfaction in a mixed collection of plants are *C. insigne*,

C. caudatum, *C. villosum*, *C. venustum*, *C. niveum*, *C. barbatum*, *C. superbum*, *C. giganteum*, *C. Roezii*, *C. Lowii*, and *C. Sedeni*. I have named such as are moderate in price, easily grown, and suitable for commencing a collection.—D. L.

NOTES ON NORTH DURHAM AND NORTHUMBRIAN AMATEURS AND FLORISTS.—No. 2.

GLADIOLI.

MR. BATTENSBY grows his Gladioli in new loam, leaf soil, and cow dung, to which is added bog peat. This compost is spread on the ground about 4 or 6 inches deep, and dug-in in the autumn, and is forked over frequently during the winter. The corms are allowed to break in a warm greenhouse, and when they have grown about half an inch long they are planted. The first lot is planted about the last week of March, and last the second week in April. The corms are planted about 4 inches deep, the beds are mulched with horse droppings when the shoots are about 6 inches high, and liquid manure made from stable urine and horse droppings well diluted with rain water is applied twice or thrice a-week until the flower stems appear, and once a-day afterwards. Mr. Battensby has great faith in two-year-old seedlings, which invariably produce fine flowers the third year. For shading, boxes 2½ or 3 feet long and 8 inches inside with glass fronts and tops are employed. These are fastened to a stake, and by means of a wedge can be lowered or raised as may be required. These are an invention of his own, and could be made for about 18s. per dozen.

The following are two dozen varieties which Mr. Battensby considers well worthy of cultivation, although they are not new:—*Adolphe Brongniart*, rose, flamed red; *Benvenuto*, orange red, white spots; *Eugène Scribe*, soft rose, flaked red carmine; *Figaro*, light orange red, white stains; *Horace*, scarlet and white blotches; *Lacépède*, rosy violet, tinted white; *Le Thane*, fiery red; *Horace Vernet*, red purple, white stains; *Jupiter*, light red, flamed purple; *Madame Desportes*, white, striped violet; *Marie Stuart*, sulphur white, blazed cherry; *Meyerbeer*, red, flamed vermillion; *Milton*, white, tinted rose; *Monsieur Legouvé*, fine red, white lines; *Orphée*, rose, flamed carmine; *Emperor Napoleon*, orange red, stained white; *Prince of Wales*, brilliant red, white spots; *Princess Mary of Cambridge*, white, carmine spots; *Pactole*, yellow-tinted rose, dark blotch; *Madame Furtado*, rose, flamed carmine; *Shakespeare*, white, flamed carmine; *Rosa Bonheur*, white, tinted lilac; *Robert Fortune*, red carmine, white lines; *Velleda*, rose, lilac stain.

But Pansies and Gladioluses are by no means the sole occupants of this amateur's garden, for Mr. Battensby cultivates vegetables and plants as well as florists' flowers. He has raised a new Potato, which he calls the *Axwell King*, a cross betwixt the *Lapstone* and the *Victoria*. It is very handsome and prolific, and so far has been perfectly free from disease.

His plant stove, which is a neat and commodious structure of about 40 feet long and 12 feet wide, is well filled with specimen and half-specimen plants of *Allamandas*, *Stephanotis*, *Bougainvillias*, *Lorax*, *Dipladenias*, all strong and good, many of them having figured conspicuously at most of the local shows. This house he has made in his leisure hours, doing both the brickwork and setting the hot-water pipes and boiler. He has also a greenhouse of about the same size as the stove, containing a magnificent example of *Erica Marnockiana*, 3 feet high by 5 feet through. This is truly a marvellous plant, perfect in health as well as symmetry and shape; also a splendid *Erica Devoniensis*, 3 feet by 5; and *E. Shannoni* and *E. Austiniana*, 3 feet by 2; *Phacocoma prolifera* Barnesii is 4 feet in diameter, and there are two good plants of *Lapageria rosea* and a smaller and healthy specimen of *L. alba*. A good collection of show and fancy *Pelargoniums* is also noticeable. In speaking of his stove plants we accidentally omitted the following novelties of recent introduction:—*Croton Andreanum*, *Cocos Weddelliana*, *Gleichenia rupestris*, *Davallia Mooreana*, and a few others.

Mr. Battensby is a thorough enthusiast in each and every department, and considering the limited time at his disposal it is perfectly astonishing how well everything is cared for. He has nearly half an acre of kitchen garden, which is well stocked with fruit trees and also three hundred or four hundred Roses, which form quite a superb collection, as he purchases the cream of the new varieties of each year. The borders are also well filled with herbaceous flowers, which he exhibits, while the squares are occupied with Potatoes, Peas, Cauliflowers, and Onions, which are all grown for the exhibition table.

Mr. Battensby's family inherit his enthusiasm, some of them watering while others are hunting for slugs in the summer evenings, and when arranging and cutting his flowers for exhibition he can send any of the family for a flower, whether it be a *Pansy* or *Rose*, each will come to him true to name. This in children not yet out of their teens speaks well for the ardour which pervades the enjoyers (for work is to them real enjoyment) of this noteworthy amateur's garden. In future notes I will refer to some *Carnation* and *Picotee* growers.—B. C.

KEEPING GRAPES.

I BELIEVE that the keeping of Grapes is more due to the condition of the fruit itself than to any external causes. That condition, in my opinion, is well-matured fruit with a good covering of bloom, which is mainly the result of proper culture and good management. A good bloom acts, I think, as a preservative to the Grapes; by being insoluble in water and of a resinous nature it resists the action of dew, and thereby renders the fruit less liable to decay from condensed moisture, which is so prejudicial to the keeping of Grapes. As a proof of this dew-resisting property of bloom, take for instance a Cabbage covered with bloom, and on examining the leaves on a dewy morning or after a fall of rain the water will be all found to be standing in globules on the surface, the fine glaucous powder being impervious to wet. This theory, if correct, would account in some measure for the Grapes keeping so well at *Drumlanrig* under so changeable an atmosphere, as the Grapes there, everyone admits, are of first-rate quality, and consequently well fortified against decay from condensed moisture by an impervious coating of bloom.—ALPHA.

THE CULTIVATION OF THE VERBENA.

I COMMENCE preparations in the spring by planting out in a bed by themselves as many *Verbenas* as I think will be necessary for stock plants. I give them plenty of room and let them grow and flower until the middle of August; I then cut them back to within about 6 inches of their roots, and if the plants are at all crowded in their centre I thin out the shoots so as to permit free access for sun and air to the plants. I then spread over the ground some decayed manure from an old hotbed, and fork it in just deep enough to bury it. If the soil is at all dry I apply water freely, as it is of the utmost importance to secure a free healthy growth. On this depends the future well-being of stock. By the end of September I obtain strong cuttings, but when making them I am not at all particular about cutting them at a joint, as I think that quite unnecessary; in fact I think it is an advantage to cut them between the joints, as more leaves can often be secured, which is very important in striking softwooded plants.

My mode of striking has always proved most successful, for I rarely lose a single cutting. I take a box or pan about 4 inches deep, drain it with crocks, and over them place some moss or coarse peat and then 2 inches of silver sand pressed down firmly and watered. In about two hours afterwards the cuttings are dibbled in as firmly as possible, then sprinkled and placed in a pit with slight bottom heat. The cuttings are shaded from bright sun for a few days, and the sand is always kept in quite a moist state. I use no bell-glass, but on the contrary give plenty of air, and in about ten or twelve days the cuttings are rooted. This I think is one of the most critical times with the *Verbena*. As soon as rooted I take them out of the sand and pot them into small 2½-inch pots, for if left in the sand the roots become elongated and hard and they will never make good plants. When potted off I keep them in the same temperature as they were struck in for about two weeks, giving plenty of air and shading from bright sun for a few days.

I never water my *Verbenas* with pure water, but always with tobacco water. I believe that tobacco water is a great stimulant to the *Verbena*. I have grown them successfully for several years and have used nothing else, so I attribute my success in a great measure to the tobacco water. Three years ago I grew fifteen thousand; I was then living in a commercial place, and stronger and healthier plants it would have been impossible to have found. I have had no mildew, green fly, or thrips since I have adopted this mode of culture. Although I use tobacco water I always fumigate once a week, as I like to be on the safe side, as prevention is better than cure. The way I use the tobacco water is this: After the cuttings are potted off I commence with tobacco water in a weak state

about the colour of pale sherry, and gradually increase its strength at every watering until it becomes the colour of very strong tea. I always use the sprinkler for plants in 2½-inch pots, but when they are in 4-inch pots I dispense with it. I am quite sure anyone who will like to try my plan will have fine healthy stock plants and plenty of good cuttings. I always keep the stock plants in a cool house or pit about 40° and pot them in rather poor soil. I do not commence propagating for spring plants until February or even later if I have sufficient stock plants to take cuttings from. Cuttings struck in March make fine plants if grown as I have described.

I am quite convinced that so many people fail in the cultivation of the Verbena because they start wrongly, taking up old plants after they have been flowering all the summer; such plants must naturally be exhausted, and the consequence is they produce poor spindly shoots, and cuttings taken from such plants are especially liable to disease. I always keep my Verbenas as near the glass as possible.—W. B.

SEASONABLE NOTES ON VINE GROWING.

A LETTER from a correspondent "TED" contains questions on subjects of interest to amateur Vine-growers generally at this season. "TED" planted a number of young Vines in the spring of 1876; each Vine bore a bunch that year. Last year the rods were cut back to about the bottom of the rafter before being started, and during the season each Vine made three strong canes. The Vines are planted 3 feet 9 inches apart, and the canes are trained 1 foot 3 inches asunder. "Are they too close?" asks "TED." The reply is, They are much too close to remain for the permanent well-being of the Vines. Overcrowding is one of the most common errors in Vine-growing, and the mistake of overcrowding of the foliage is not confined to amateurs, but is not unfrequently indulged in by professional gardeners.

For the first year or two when Vines are young and vigorous they will push almost through any impediment from overcrowding, but they eventually sustain injury and show it by their gradual decrease of strength in making weaker shoots year after year, eventually producing spindly bunches or none at all. It has been proved times without number, that no tree will make healthy growth from half-ripened wood, and it is contrary to all reasoning to suppose that fine crops of fruit will be produced under conditions where the growth by being overcrowded cannot become matured. Canes growing 15 inches apart cannot develop their shoots without covering each other. As a rule Vine shoots bearing fruit cannot be stopped shorter than 18 inches to give two joints beyond the bunch, consequently the shoots from one rod not only crowd on the shoots from the next rod but overlap the main stems of each other. All Vine rods when young should be at least 2 feet from each other, and "TED" will find it much more satisfactory if he trains only two canes up from each Vine instead of three. All Vine rods closer than this should be cut out at once. If the Vines have commenced growing, the sap may be prevented from oozing out after cutting if a good quantity of joiners' knotting is daubed into the cut.

"TED's" Vines have just commenced showing leaf, and every bud is emitting two shoots. Many Vines do that, and very often every shoot that appears is allowed to grow, which is another and very sure way of overcrowding. As a rule when the shoots are from 2 to 3 inches long it can be seen which are going to produce the finest bunches. When there are two or three of them together rub off every shoot excepting the one bearing the best bunch. Have no hesitation in doing this, as it is the very best that can be done for the Vines. Young short-jointed canes often require disbudding too, as the shoots should not be left on them closer than a foot apart. "TED" will do well to attend to this, and six bunches will not be too many for each rod. All other bunches excepting these should be removed, but not until the berries have been formed, then cut off those which may not have formed properly and in sufficient quantity to ensure good bunches; but when only one shoot is left to each eye the shoot from which the bunches have been removed must not be cut away, but stopped and not allowed to grow further than 1 foot from the main rod. Never leave more than one shoot to a bud or spur as a rule, and do not leave the shoots closer than a foot on each side of the cane. All shoots at that distance from each other should be left, whether they are bearing fruit or not, as they will be required to form spurs when pruned to produce shoots annually.

All Vines may safely be started into growth now; but little

fire heat should be employed, in fact it need never be used for the first three weeks or a month after the ventilators are closed unless the outside temperature falls below 40°. Vines which have had a foot or 18 inches of new soil placed on their roots throughout the winter as a top-dressing will derive much benefit from having dung and leaves to the depth of 18 inches placed above the fresh soil, as it has a tendency to draw the roots into the new material.

"C. P. P.," page 145, thinks cow dung is not so lasting, and consequently not so good for Vine borders as horse and pig dung. Pig manure I have always found very hot, and it must be used with very great caution. Further than this I have nothing to say against it. It makes nourishing liquid manure, and in this state we use a large quantity of it. About horse dung being more lasting in its effects than cow dung I have great doubts; but I have no doubt at all about it being decidedly inferior to cow dung for Vine borders. I fancy "C. P. P." cannot have understood fully the risk he might lead many to incur by employing horse dung. Had I no other manure than this in making a Vine border I would keep it out altogether and make the border without manure, because extensive practice amongst Vines and Vine-border-making has satisfied me that there is nothing that can be put in the border that will produce fungus quicker than horse droppings: and it is equally well known that nothing is more injurious to the Vine than fungus at the roots. A few years ago I saw a number of vineries which had been recently planted near Manchester. During the first year every Vine made most satisfactory growth, but the second year many of them refused to grow at all, and on examining the border it was found that the roots had been poisoned by fungus generated from the horse dung extensively used at the time of making the borders.

"C. P. P." also objects to what he terms my "laying down the law too definitely." I did not think I had done so, especially as in the remarks he refers to I stated that "many little details which may be found necessary are omitted here, but all the most important points are included and may be applied with a little addition or reduction, according to circumstances." Is this a definite law? His suggestion as opposed to mine may be considered merely as a matter of opinion.

To return to "TED;" if he has any fear that his Vines have grown too much for the superfluous rods to be cut out with safety, let him rub the whole of the shoots from every third cane and train the laterals of the rods remaining at the distances above recommended.—A KITCHEN GARDENER.

THE CHRISTMAS ROSE AND OTHER HARDY FLOWERS.

I DO not remember ever seeing the common Christmas Rose so fine as it is this season. Many of the individual flowers exceed 3 inches across, are of the purest white, and on stalks from 6 to 9 inches in length. Two years ago, about this time of year, I collected a few large plants, which were pulled to pieces, making in all over three hundred young plants to start with. These were laid in on a border which had been liberally dealt with. Last spring they were treated to a sufficiency of rich material, and this present winter and spring they are fully repaying us for the extra attention given. In the course of a few weeks the entire lot will be lifted, the larger plants divided and again planted, but this time into narrow beds to allow them to be more easily reached for cutting the flowers. I am well aware it forms part of our common gardening creed that Christmas Roses should not be disturbed, but, like many other commonly received opinions, when tested by results there is no good reason to be found for it. A large plant of *Helleborus atrorubens* is even of more value to us in the way of supplying cut flowers than *H. niger*. It was divided at the same time and treated in the same manner, and will also be lifted and the largest plants again divided. This has been taken for a Passion-flower over and over again when presented in a cut state, and certainly there is no Passion-flower more attractive than this Hellebore. I have the care of a good selection of hardy plants, but none of them do I like better or find of more use than *Helleborus atrorubens*. By simply denuding the flower stalks of everything but the flower these stand perfectly well.

Other hardy flowers most excellent for filling glasses, and which are producing bloom in any quantity, are Hepaticas of numerous sorts, none being better for our purpose than the single white, dark blue, and pink; Crimean and double Snowdrops, the satiny *Sisyrinchium grandiflorum*, *Arabis alba*,

which will continue to flower well into summer, and Violets, the best of which is Czar; Queen Victoria is larger, but the flowers do not open well here. We have also others, but Czar is our mainstay.—R. P. BROTHERSTON, *Tynninghame*.

ECHEVERIA RETUSA.

THE generic name was given in honour of M. Echeverri, the artist who produced the beautiful drawings of the "Flora Mexi-

cana." The specific name, *retusa*, refers to the form of the old leaves, they being rounded at the end and depressed in the middle.

Perhaps no plants became more suddenly popular than Echeverias when once the "ice was broken" and it was seen how admirably many of them were adapted as edging plants in flower gardens. Their close rosette-like habit of growth and their fleshy glaucous leaves imparted a distinct feature to flower gardens in summer, and gave a finish to the beds



Fig. 29.—ECHEVERIA RETUSA.

such as no other plants could effect. No sooner were they employed in the parks of London than they secured public appreciation, and it became necessary for gardeners far and near to obtain and increase a stock of the coveted "Succulents." Eventually whole beds were planted with fleshy-leaved plants, some of which are as stately in form as others are close and

compact in their habits; indeed, it was the character of growth rather than the beauty of the flowers that was the chief source of attraction possessed by this class of plants.

The species figured is an exception to the general rule that Echeverias are cultivated because of their distinct forms of growth and fleshy foliage, for *E. retusa* is primarily grown on

account of the beauty of its flowers, and the plant is justly regarded as being additionally valuable because these flowers are produced during the winter. So popular has *E. retusa* become for winter decoration that large numbers of plants are now prepared by trade growers for supplying Covent Garden Market. These plants are esteemed as window ornaments by dwellers in towns, and they are equally suitable for furnishing the stages of greenhouses and conservatories in country and suburban districts. The flowers are very bright yet extremely chaste, and the effect of well-grown examples of this *Echeveria* are quite dissimilar from any other plants flowering at the same period.

The most useful plants are those grown and flowered in 5-inch pots, and when such plants have five or six flower stems, supporting in the aggregate nearly or quite one hundred orange-red and yellow flowers, a display of no common order is produced. The plants are readily propagated by leaves or cuttings, and are easily cultivated. A rather rich loam containing a liberal admixture of charcoal or any gritty substance forms a suitable compost. Where moderate-sized plants are produced they will, if planted out in rich soil in a sunny position in May, make fine flowering plants by the autumn, when they should be potted before they are touched by frost. No plants lift better from the open ground than these, but they must be taken up soon enough, for frost turns the foliage brown and heavy autumn rains promote its decay. The plants continue in beauty for a period of several weeks. The calyx of the flower is divided into five unequal green spreading lobes, the corolla being also five-parted; it is much longer than the calyx, and is orange red externally, the interior margins of the segments being yellow. The flower stems grow about 8 inches high, and seldom need stakes to support them.

Echeveria retusa was received by the Royal Horticultural Society in 1846 from their collector Mr. Hartweg, who discovered it growing on rocks near Anganguco in Mexico.

A PLEA FOR AMARYLLISES.

CONSIDERING the great beauty of these plants it is to be regretted that they do not receive more attention. In bulbs, particularly Amaryllids, we possess some of the most lovely and sweetest of flowers. Immortalised since the time of Solomon, it is remarkable that these plants are very meagrely represented in gardens. I allude not to the different genera of the order Amaryllidaceæ, but to the genus *Amaryllis* in particular. True, we find a few of the *Amaryllis* or *Hippeastrum* *aulica* type, but none, except in rare instances, of the very fine varieties that owe their origin to the Messrs. Veitch and other raisers, many of which varieties are as great advances upon the species as are to be found in *Pelargoniums*. Why plants of such great and distinct beauty should be neglected I could never make out. I grant that they have few leaves when flowering and little or no perfume, but the flower scapes above a carpet of *Fera fronds* have a truly gorgeous effect. The flowers for cutting are particularly valuable from their rich glow and bright distinct markings. Indeed, there are no greater ornaments for decorative service than Amaryllises, the pots not being difficult of concealment, as the scapes are borne on stout stems at a distance from the bulbs, which renders any disadvantage of foliage practically imaginary. Some kinds, however, have foliage along with the flowers, there being no reason why by hybridisation a race of perfectly evergreen Amaryllises should not be raised. We have *Hippeastrum pardinum* with foliage almost as persistent as *Vallota purpurea*, which, by the way, is not any more perfumed than a majority of *Hippeastrums*, yet no one would care to be without the Scarborough Lily in quantity. Upon the same ground no objection can be taken to *Hippeastrums* on the score of perfume not being present. They are in winter and spring months what *Vallota*, *Belladonna*, and Guernsey Lilies are in late summer and autumn—viz., indispensable; in fact they are even more useful, not infrequently flowering in autumn and again in spring. This tendency to second bloom is very marked in *H. pardinum*, which possesses also this distinct feature—it improves with age. As the bulbs increase in size they increase in size of flower, in the number of scapes, and in frequency of flowering. I am convinced that this class of plants will become popular, and that we shall have them as highly perfumed as an *Eucharis* and in a still greater variety of colour; and I hope to see *Vallotas* at least striped if not snowy white, with the perfume of the Guernsey and *Belladonna* Lily, and flowering more than once in a season.

I do not know how many scapes a bulb may be made to produce in a season; but strong bulbs will afford two, succeeding each other, and this without any apparent exhaustion, but contrariwise increased vigour. It is clear, however, that exhaustion speedily follows seed-production, and the ripening of seed should therefore be avoided; indeed all plants are more enfeebled by the perfection or even partial development of the seed vessels than by an excess of bloom, which points to the removal promptly of the seed vessels of all plants immediately the flowers fade if the after well-doing of the plants is important.

There is no greater error committed in bulb culture than that known as the drying-off process. Amaryllises dislike drought at the roots. I, like many others, thought a complete rest absolutely essential, and kept them dry after the growth was complete. It certainly caused a loss of a majority of the roots, often necessitating the placing of the bulbs in a hotbed to induce them to start. Now the very reverse is practised; and I strongly advise those who have hitherto tried the drought system of ripening to never allow the soil to become dry—that is, if they care to have scapes as long and as thick almost as walking sticks with corresponding umbels of large flowers. Bottom heat is quite unnecessary. I keep what few plants I have on shelves 18 inches to 2 feet from the glass, the shelf being suspended so that the foliage can spread itself all around and be fully exposed at all times to light, which I think essential to the vigour (and upon which depends the free-flowering) of the plants. From the shelf they are withdrawn only for flowering, and are immediately afterwards replaced, so that leaf-growth may be made in the full light. The foliage is then moderate in amount, but is gracefully arched and leathery, of a deep green colour, and with which the bulbs increase quickly in size. They are watered very freely during growth, and having the benefit of the usual sprinkling twice a-day and damping at noon, the watering being continued until the foliage shows evidence of ripening, for many of the varieties cast the leaves when the growth is perfected, but some retain the foliage; but not one that I have examined shows any diminution of root-action. Certainly no loss takes place, if the soil be kept moist, from going to rest and starting into growth. In fact I have frequently turned the plants out of the pots and found the roots as closely matted as a crested ball. They are kept moist, and yet very much less water is required when at rest than when growing; but there is very little difference, nevertheless, as to moisture, only it is required less frequently.

They are grown in 7-inch pots, and are not potted more frequently than when the removal of offsets necessitate, or the soil becomes wasted, as it very often is, by worms. This potting is done directly after flowering. The old soil is simply removed without injury to the roots, and the offsets being removed with roots there is opportunity to make some reduction of the ball, in which case the parent plant may be returned to the same size of pot, or, if larger bulbs are wanted, the plants are not infrequently too large for being transferred to the same size of pot without a wholesale destruction of roots, which is undesirable, in which case it is preferable to transfer to 8 or 9-inch pots; but I prefer to keep them in the 7-inch, and as many as possible in 6-inch, which may generally be accomplished by the removal of the surface soil and picking-out that at the sides of the ball. Good drainage is necessary. Yellow loam rather heavy than light is a suitable compost. Liquid manure during growth is better than enriching the compost with manure, which speedily decays and leaves the soil loose, these plants requiring a firm soil, their roots "feeling" the sides of the pots, and then they grow sturdy, form large firm bulbs, and give immense scapes of bloom, unsurpassed by any other class of bulb requiring a stove temperature. They do well, however, in an intermediate house, and are deserving of very much more attention than has hitherto been accorded them.—G. ABBEY.

GLEANINGS FROM GLASNEVIN.

EVEN at the dulllest season there is always something to interest and repay a visit to Glasnevin. The year is yet in its infancy, and vegetation generally only as it were awaking from its repose; but early as it is, anyone in quest of floral beauty will find there examples of it in the open as well as under the glazed roof and in the artificial climate of stove and greenhouse. The noble specimen of *Arbutus hybrida* which stands on the grass lawn in front of the Director's

house, its every spray terminated by a pendulous panicle of pale waxy flowers, is just now a beautiful object. So, too, a little further on, is a goodly specimen of *Rhododendron præcox*, simply a mass of flowers. The Tree Heath (*Erica arborea*) is garlanded with its pearly bells; the lovely *E. carnea* is in full flower, as is also the rather rare white variety of it. More interesting than any of the three, to the lover of our native flora at all events, are the lowly bushes of Dr. Moore's remarkable variety of *E. mediterranea*, which have been for several weeks past in full bloom, and exhaling an agreeable fragrance.

In the way of bulbous spring beauties, besides the abundant white and gold of the "first pale blossom of the unripened year," and the yellow Crocus, the kindred but far prettier Snowflake, of which we were gratified to see numerous patches in the borders, and the lovely *Iris reticulata*, are very attractive. Some of the Hellebores are still in condition, notably *Helleborus purpurascens* and the stately *H. orientalis*. White and purple patches of *Iberis*, *Arabis*, and *Aubrietia*, yellow bosses of *Alyssum olympicum*, and rosy-flowered cushions of *Saxifraga oppositifolia* serve to brighten-up the herbaceous quarters. Leaving the outside ground, and turning into the cool conservatory which flanks the Palm house on the west, we found it particularly gay and attractive, several magnificent Himalayan *Rhododendrons* being in flower, notably two well-marked varieties of *R. argenteum*, the branches crowned with gorgeous heads of huge creamy white flowers, also the white-flowered variety of *R. arboreum* and *R. barbatum*, with flower heads as remarkable for their compactness as for their dazzling brilliancy.

Both the Orchid house and greenhouse are gay with many flowering specimens, and in the stove conservatory that grand old plant *Astrapea Wallichii* has just ceased blooming, and its many pendant tassels, though no longer gleaming with colour, told that the bloom had been unusually profuse.

We were much gratified at meeting a specimen of that grand Myrtaceous tree *Syzygium Moorei*, which the Director of the Melbourne Botanic Garden has described as presenting when in full bloom "one of the most gorgeous spectacles imaginable, its every branch and even part of the stem clothed with one mass of royal purple blossoms, having the appearance of rich pale velvet." This grand flowering tree is specifically named in honour of Mr. Charles Moore, brother of Dr. Moore, and Director of the Botanic Garden, Sydney, from whom the specimen at Glasnevin was received. Until we saw it there on this occasion we fancied it had not yet been introduced to Europe. It was further gratifying to us to learn from Dr. Moore that he has received a supply of seeds of another beautiful Myrtaceous tree—*Eucalyptus ficifolia*, of whose floral charms the Melbourne Director, in his report for 1876, speaks in still more glowing terms.—(*Irish Farmers' Gazette*.)

NOTES ON VILLA AND SUBURBAN GARDENING.

IN the hedgerows the silent progress of spring is visible. The Violets and Primroses are lifting their ever-welcome heads, while the Hazel bush is conspicuous with numerous weeping catkins, which contrast with the miniature female flowers of the most intense scarlet. There is also a murmuring of life in the air which a few weeks since could not be heard—the song of the thrush and blackbird—all reminding us that we must be up and doing, and that the busiest month of the whole year is with us; and everyone who values March dust will not lose any time in forwarding any gardening operations still left undone, but be ready to take advantage of weather suitable for sowing and planting.

Peas sown now will oftentimes be ready to gather within a few days after those sorts that have stood throughout the winter, and good varieties for present sowing are William I. and the well-known Champion of England. William I. is a green Marrow Pea of a hardy constitution, combining both earliness and flavour, and is remarkable for its productiveness. It is a Pea that is fast becoming popular, and is highly suitable for amateurs, as it does not require sticks more than 3 feet 6 inches in height. Champion of England is still one of the best blue wrinkled Peas we have, but requires sticks from 5 to 6 feet; it is also a most productive Pea of the very best flavour. Draw out shallow drills about 3 inches deep and sow the Peas moderately thickly, but even and regular, along the drill. Merely drawing the soil over them is all that is necessary unless birds are troublesome, then old fish nets or Pea-protectors should be employed. Birds do most damage to Peas just as they are sprouting through the ground, so at this season of the year it is well to place on the protectors at the time of sowing. Broad Beans for a full crop should also be sown in rows 2½ to 3 feet apart. Broad Windsor, Seville Longpod, and

Monarch Longpods are good sorts for present sowing, but the Seville does not succeed in cold districts. The main crop of Onions must be sown as soon as the ground is in proper condition. On very light soils we find it best to sow during February, but on heavier soils sowing should be deferred until the ground is in a loose friable state. In all cases select an open space that has been deeply dug or trenched and well enriched with manure, and sow in drills a foot apart and about half an inch deep, raking the surface smooth after sowing. On very light soils when the ground is dry it may be made firm with a light garden roller. Sow the White Spanish for first crop, and Brown Globe and James's Keeping for later supplies. Make further sowings of Radishes Wood's Early Frame and French Breakfast, and of Lettuces Paris White Cos and All the Year Round Cabbage. A good breadth of Parsley should also be sown in shallow drills a foot apart, thinning out if the plants come up too thickly. Summer Spinach is frequently sown between the rows of Peas, but when sufficient room cannot be allotted to a breadth of Peas sow the Spinach in rows a foot wide, and gather the young leaves for use as soon as large enough. The thinnings may also be cooked, merely twisting the young roots off. Give abundance of air to Cauliflowers and Lettuces growing under frames and handlights to harden them sufficiently for planting out; and lay Potatoes out thinly to sprout in a steady manner for planting towards the end of the month.

Apricots, Peaches, and Nectarines that have had their branches removed from the walls for the purpose of retarding their fruit blossoms as much as possible must now be nailed in their positions at once. The branches must be handled very carefully, or considerable damage may result from rubbing off the almost bursting fruit buds. All fruit trees on walls are generally speaking very promising. The almost total failure of the fruit crop during the past season has given the trees a season of rest, which has enabled them to form an extra proportion of fruiting wood; and if a genial season should follow, or sufficient protection can be afforded them throughout their setting period, an abundant supply of good fruit may be anticipated. Many kinds of protectors are extemporised, glass copings being perhaps the most effectual. Covering with canvas and old fish nets is frequently resorted to, accompanied with more or less success; and even a few spruce branches hung over the trees have at times been the means of saving a crop which otherwise would have perished from inclement weather during the time the fruit blossoms are open.

Roses.—The result of the mild season is now conspicuous amongst Roses of all kinds, in fact many of them have made over an inch of growth already; taking their activity into consideration we should advise that they be pruned without delay, even if it should in some cases be a week or ten days before the time usually recommended for performing this important operation. If pruning is delayed after this time the Rose bushes, from their activity, will receive a check that they will scarcely get over throughout the season. Gloire de Dijon and such-like strong growers only require the weak and dead wood removing, and the strong and gross shoots fastening to the trellis or framework to which they are attached. Hybrid Perpetuals should be pruned to two, three, or four eyes, according to the habit of the variety, always cutting the shoot back to a prominent out-looking bud. Remove the weak shoots from the centre of the plant if very bushy, care being taken to leave an open and well-balanced head. We prefer an ordinary pruning knife for pruning Roses, but we have known some amateurs do the work better and quicker with a pair of sécateurs. In certain cases with dwarf Roses it is a very good plan to peg the branches down, merely cutting the tips of the shoots away; this plan for covering beds or banks can be highly recommended, and we have seen very fine blooms result from this laying or pegging down. As the work of pruning proceeds have all the prunings gathered up, and let the ground underneath, on which a mulching of manure was laid as previously advised, be dug-in; this will make everything fresh, and give a neat appearance to the beds.

Conservatories and Greenhouses.—These structures are now becoming gay with numerous forced flowers. Hyacinths and Tulips are now coming into bloom in a natural way, and must have abundance of water and stakes placed to them directly the flower spikes emerge above the foliage, otherwise the weight of their heads will cause them to bend over and perhaps snap off.

Bedding plants, such as Verbenas, Petunias, Lobelias, Coleuses, Alternantheras, &c., can now be propagated very freely, and will strike readily in a moist temperature of 70° to 75°. Pot-off without delay all Geraniums that have been stored in pots or boxes, keeping them close and warm for new roots to form, and cut down any old straggly plants that were lifted from the beds in the autumn; the tops will make excellent cuttings, and may be grown into fine plants for autumn blooming.

WORK FOR THE WEEK.

KITCHEN GARDEN.

DUE regard having been paid to the manuring, trenching, or digging of vacant ground for the reception of seed crops generally, it will now be in good tilth. The sowing of Onions in cold

localities may be deferred a fortnight longer provided the ground is not in good order; but the sooner they are sown the more likely are fine well-ripened bulbs to be formed. Reading, White Portugal, Brown Globe, and James' Keeping are excellent. Lose no time in sowing Parsnips and a good breadth of Early Horn or Early Nantes Carrot; a few James' Intermediate may also be sown, but defer the main sowing of Carrots for winter use until next month. Leeks sow in the open in drills 12 inches apart, and thin the plants to 6 inches asunder, the thinnings being capital for soups. A bed of Leeks ought to be in every cottage garden for spring use, they being very hardy—Musselburgh is first-rate. Lettuce sow in the open; we take a row in the alleys between the Onion beds, thinning-out the plants to a foot distance apart. All the Year Round and Neapolitan in Cabbage kinds, and Bath Cos Sugarloaf, with Alexandra Cos, are fine for this and subsequent sowings through the summer. Sow Turnips on an east border in drills 9 inches apart, thinning the plants to 6 inches. Early Snowball, Veitch's Red Globe, and Golden Ball are excellent varieties; the latter, having a yellow flesh, is not in such repute as the white, but it really is one of the best-flavoured Turnips. Radishes, sow from this time forward every fortnight or three weeks, French Breakfast, White Turnip, and Short-top Long Red. Make a sowing of Peas of such kinds as Dr. Maclean, Maclean's Wonderful, Dwarf Prolific (Prince of Wales), Best of All, Veitch's Perfection. For all kinds of medium height 4 feet is a sufficient distance between the rows, sowing a row of Round Spinach between each two rows of Peas, or if too much of this vegetable would be produced for the demand Radishes may be sown between the rows of Peas, they and the Spinach in no way interfering with the Pea crop. Tall main-crop kinds are represented by Culverwell's Prolific, Duchess of Edinburgh, and Emperor of the Marrows. Sow Broad Beans, Monarch Longpod and Improved Windsor. Earth-up the autumn-sown crops, also earth-up and place sticks to the early crops of Peas as required. Plant Seakale, also Horseradish in good well-manured light soil. Seakale which has been forced and afterwards hardened-off in a shed with the roots in moist sand may now be planted out. The crowns from this planting ripen early for forcing another year. Plant a good breadth in favourable localities of early Potatoes; in cold and northerly districts defer planting a fortnight or three weeks. Myatt's Prolific, Veitch's Ashleaf, and Fenn's Early White Kidney are superior in cropping, but are a few days later than the old Ashleaf. Unsprouted second earlies may be planted, but we prefer sprouted sets planted at the end of the month or early April in cold localities. Lapstone, Rector of Woodstock, and Snowflake are good both in cropping and quality.

Forcing Department.—Sow Celery for the main crop in gentle heat, but immediately the plants appear remove them to a cold frame or cool house, keeping them near the glass. Major Clarke's Solid Red, Williams' Matchless Red, Sandringham Dwarf White, and Wright's Giant White, are good sorts. Sweet Basil and Marjoram for early use may be sown in gentle heat, the plants when large enough to be pricked off into boxes; also sow Chervil in boxes if that in the open ground has not stood the winter well. Maintain the supply of Asparagus, Rhubarb, and Seakale by the introduction of fresh roots. Gently forcing the crops in the open ground, however, gives finer produce than that had by taking up the roots. Old roots of Rhubarb which have been forced may, after having been hardened off, be divided and planted out in rich soil, and in two years they will be strong enough for forcing again. Potatoes in frames, Radishes, Carrots, and Lettuces give due attention to in ventilating, and watering with weak liquid manure if needful, at a temperature of 65°. Early Potatoes will be tuberizing, and must not want for moisture until they are of a useable size, when keeping rather dry will do much to improve the quality. Those having pits, frames, or ground vineries may profitably employ them in the producing of early Potatoes, which plant forthwith. Nothing is so annoying as a break in the supply, and not infrequently a blank occurs between the forced and outdoor crops. Lettuces in frames planted in autumn are coming in; first in the race is Early Paris Market, closely followed by All the Year Round and Stanstead Park, with Bath Cos Sugarloaf and Hicks' Hardy White Cos to follow. They not infrequently suffer for want of water; weak liquid manure with the chill taken off may be given between the rows. Ventilate these and all crops of like kind in cold frames or under handlights whenever opportunity offers, drawing by want of air or timely thinning being fatal to profitable and high-quality produce. Endive wintered at the foot of walls may be blanched by an inverted flower pot with the hole stopped, or pantiles laid over the plants. Seakale in the open ground will be had by covering the crowns with inverted flower pots, stopping the holes, and covering with any light material, such as dung and leaves. Chicory may be blanched in the same way, cutting off any green tops, not too close to the crown. Sow Mustard and Cress frequently. Keep the pods closely picked from Dwarf Kidney Beans as they come fit for use, affording the plants water and liquid manure copiously.

HARDY FRUIT GARDEN.

Various methods of protecting fruit blossom and the tender young fruit and foliage have been previously enumerated, there-

fore we have only to point that if an expectation of a crop of fruit is to be ensured the requisite material must be provided and prompt application of the same made every evening after the blossom shows colour until the safety of the crop is manifest. The necessity of letting down the canvas, &c., may not be very apparent early in the evening, but the sudden and great fluctuations of temperature take place most frequently shortly after dark or shortly before daybreak, the latter, though of short duration, often in the absence of protection being such as to destroy the crop. The pruning of Cherries, Gooseberries, and Currant trees on north walls is not infrequently delayed from press of work to the last. Let it and nailing-in be proceeded with, and as these descriptions of trees are subject to attacks of aphides, to the disfigurement of the fruit, dress them with tobacco juice holding in solution soft soap 1 lb. to gallon of water.

FLOWER GARDEN.

In mixed gardens flowers are not confined to summer, nor graceful forms to tender exotics. Happily we have flowers for all seasons; from the Winter Aconite and pendant bells of the Snow-drop new beauties unfold in rapid succession, fragrance filling the air to repletion. Alpines and Ferns should now be trimmed, which in the case of alpines will be restricted to reducing such clumps as are too large, replacing any blanks with fresh plants, removing any decayed growths that may have been left as a sort of protection, adding fresh compost to such as require it. In the case of Ferns all dead fronds should be cleared away, the soil stirred around the plants, and a dressing of peat applied, strong-growing kinds having a preference for leaf soil. In forming a fernery positions in the shade and under the drip of trees are not uncommonly chosen, which is very unsuitable to the smaller Ferns, and the stronger growers suffer from drought in summer through the soil being kept dry by the roots of the trees, and the drought beneath large trees is fatal to the well-doing of the Ferns. Sheltered shady nooks should be chosen for a hardy fernery. An alpinery, on the other hand, should be in the open exposed to every breeze, having its slopes, ledges, crevices facing every point of the compass, which will afford sites for a greater variety of plants than those with one aspect only. In the case of large rockeries we have seen Ferns associated with alpines, the Ferns occupying the northern and such shady nooks on the east and west aspects as were suited to them, being intermixed with alpines, as Alyssums, Iberises, Aubrietias, Anemones, Campanulas, Lithospermum prostratum, &c., which among small-growing Ferns impart a lively appearance; indeed, we think such arrangements more pleasing than those less diversified.

Dahlia placed in heat as previously advised will now be affording plenty of cuttings, which taken off with a heel, potted singly in small pots, strike readily in a bottom heat of about 70° to 75°. The general stock of tubers should be examined, any decayed parts being removed, but they need not be started yet. Continue the propagation of such bedding plants as are short of the quantity required. *Salvia patens* is a good old plant. Roots now placed in heat will give cuttings shortly, which strike in gentle bottom heat; plants are also readily raised from seed sown in a hotbed. Insert without delay cuttings of such subtropical plants which are not raised from seed.

FRUIT HOUSES.

Vines.—Start the houses intended to afford fruit in August onward; indeed, Muscats, Alicante, Lady Downe's, and other late sorts should be encouraged to move now, as the fruit keeps much better when ripened in August or early in September than when the season is more advanced at the ripening period. Vines, however, which have only been recently pruned should not be started for some time yet. In the case of inside borders they should be brought into a thoroughly moist state by the application of water at a temperature of about 80°. It will in some degree stimulate the roots and compensate for the lack of fermenting material, which can do little good after this; indeed, no advantage accrues to the roots from an application of fermenting material to outside borders when artificial heat is not applied internally before March. The atmosphere should be kept moist by damping the rods and every available surface two or three times a day, 50° being a sufficiently high night temperature, and 65° by day with sun. Vines started early in December will have the fruit thinned and swelling freely. The border must not lack for moisture, which should be applied at a temperature of 80° to 85°, liquid manure materially assisting in the swelling of the berries. The outside border must have the fermenting material replenished as required. The sprinkling of the Vines should cease with their coming into flower, but a moist atmosphere must be maintained by keeping the evaporation troughs filled with guano water, a pound to twenty gallons of water; employ the same for sprinkling the paths in the afternoon. Vines started early in last month will be breaking, and will require attention to disbudbing and regulating the shoots as they advance, raising the temperature to 60° at night; on cold mornings it may fall to 55°, 65° by day from fire heat, up to 75° or 80° with sun.

Peaches and Nectarines.—Attend to the tying and regulating of the shoots as they advance in the earliest house, syringing morning and afternoon to keep red spider under, but if the pest obtain

a footing dislodge it by syringing with some approved insecticide, or a solution of soft soap 2 ozs. to the gallon of water. In the second house tying-in and disbudding must be proceeded with. The fruit, having had a considerable thinning after setting as before advised, will only require moderate thinning now, it being highly prejudicial to Peach and Nectarine trees to allow all the fruit to swell and reduce the number at once to a small quantity. Thinning, like disbudding, requires to be done gradually. Some kinds have twin fruit, as Noblesse and Grosse Mignonne: remove all such. The blossoms have set very thickly this year so far, and upon a shoot of 9 to 12 inches in length are a dozen or more of fruit, which we thin so soon as the blossoms are cast, removing the smallest fruit, that on the under side of the branches and the badly placed, leaving three to five upon a branch of the length named, which are reduced when the size of marbles to two, and afterwards to one, though both may be allowed to remain if there be a deficiency in other parts of the tree. When the fruit is of the size of walnuts the temperature may be raised to 60° to 55° by night, 65° by day from fire heat, and 75° from sun heat. If brown aphid appear fumigate two nights consecutively, being careful to have the foliage dry or the leaves will be blistered. There is no need to start the latest house, as the blossoms of Royal George are fully expanded; therefore no syringing must be practised, but keep the floors, &c., damped morning and afternoon, leaving a little air on constantly at the top of the house, employing as little fire heat as possible, but after the stamens appear a certain amount of warmth is needed, as we find that when the flowering extends over a considerable time that the blossoms do not set well; therefore, after the blossom opens maintain a night temperature of 60°; 5° lower in frosty weather in the morning will do no harm, and 55° by day up to 65° with sun. In the case of weak trees having a superabundance of blossom it will be advisable to remove those flowers from the under side or back of the shoots, as the trees may be against front or back trellises. Keep the borders in a thoroughly moist state.

Figs.—The earliest trees forced in pots swell their fruit best by having liquid manure applied, and being weak it may be given whenever watering is necessary. Syringe twice a day, not only to keep down red spider, but to maintain moisture in the house, which is so requisite to healthful growth in bright weather. Temperature 65° to 60° at night, 70° to 75° by day, rising to 80° at closing time. Attend to stopping the shoots and thinning those of trees planted out and started early last month. Overcrowding the shoots prevents the swelling and ripening fruit at a later period from receiving a proper amount of light and air, and renders the trees unfruitful. The pruning and dressing of the trees in late houses should be completed.

Cucumbers.—Increased light and solar heat will cause an increase of evaporation, therefore the atmospheric moisture must be increased or thrips and red spider will make speedy havoc of the foliage. The evaporation troughs should be kept filled with liquid manure, and the foliage be damped early on bright afternoons. If any of the above pests are visible remove the worst infested leaves, fumigating gently for the thrips, painting the pipes for the red spider with flowers of sulphur made a cream with milk. Sponging the leaves with soft-soap water is not advisable, as from the bruising and scorching which often results the remedy is worse than the disease. Better apply the syringe freely, as water is the best antidote to insect attacks. Keep young growths tied down, thin-out superfluous shoots and deformed fruit, stop at the first joint above the fruit, remove nearly all male blossoms, well thinning-out the fruit of young plants, and do not allow the fruit to hang too long, as it weakens the plants. Liquid manure may be applied once or twice a week. Keep the bottom heat at from 80° to 90°, top heat 70° at night, admitting air at 75° up to 90° as a maximum from sun, closing at 85°.

Melons.—A bed being in readiness, place a little soil all over the surface of the dung and a bushel of soil in each light, raised in a hillock with a flattened top, about 8 inches deep and well firmed down, planting when it is found that the bottom heat will not exceed 90°. Sow for succession at such intervals as the requirements of the establishment determine as to quantity. The bottom heat in houses must be kept at 80° to 90°, top heat 70° to 65° at night, 75° by day, admitting a little air at that, rising to 85° with sun and closing at that, and if an advance be made to 90° all the better. Sprinkle the house and plants in bright weather morning and afternoon, and be careful not to overwater, yet not allowing the soil to become too dry.

Orchard House.—Trees growing in pots and placed in their summer stations should be placed upon bricks if not wanted to root into the soil. Water will require to be repeatedly applied to have the soil thoroughly moistened to the base of the pots. Those trees planted out should have a good soaking with water slightly higher in temperature than that of the house, mulching with short manure lightly. Ventilation should be given very freely in mild weather, night as well as day; but in bright weather close early and admit air before the sun has raised the temperature considerably. Cold frosty weather prevailing whilst the trees are in bloom the ventilators must be kept close day and night; but in

the case of Peaches and Nectarines a heated house should be provided—indeed, all fruit houses should have means of preventing injury to the blossom and young fruit from frost. Aids to the fructification of the blossom are the shaking of the trees rather sharply so as to distribute the pollen, or the setting will be greatly assisted by applying the pollen to the stigmas with a camel-hair pencil. Good as are those aids, well-nourished blossoms are of far more consequence, and to be such they require warmth for their complete development and a well-ventilated atmosphere. Orchard-house trees, from the cramping of their roots in pots and restricting the growth by stopping, have, as a rule, very little growth beyond fruit buds now coming into bloom. A good thinning of the blossom is often as essential to a good set as thinning the fruit afterwards is essential to have fine highly-flavoured fruit. Overblossoming means a bad set; it exhausts the trees in the same way as overcropping. Thin the blossoms, especially upon weak growths, removing the smallest buds or blossom as the case may be. Keep a strict look-out for aphid, fumigating unless a majority of the blossom is expanded, in which case it is not safe to fumigate; but the aphid may be destroyed by applying tobacco juice with a brush to where the insects cluster upon the wood. There need, however, be no aphid if the house be thoroughly fumigated before the blossoms expand, the trees having been dressed in winter; nor any scale, which yields to soapy solutions.

TRADE CATALOGUES RECEIVED.

Wm. Clibran & Son, Oldfield Nursery, Altrincham.—*Catalogue of New and Choice Plants and Seeds.*

Francis & Arthur Dickson & Sons, 106, Eastgate Street, Chester.—*Catalogue of Select Farm Seeds.*

James Yates, 29, Little Underbank, Stockport.—*Catalogue of Vegetable and Flower Seeds and List of Gladioli.*

Samuel Yates, 16 and 17, Old Millgate, Manchester.—*Descriptive Catalogue of Vegetable and Flower Seeds.*

Edward Webb & Co., Wordsley Stourbridge.—*Illustrated Catalogue of Farm Seeds.*

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

CORRECTING THERMOMETER (A. W.).—If you send the instrument to the Director of the Observatory, Kew, you can have it corrected. A moderate fee is charged, the amount of which you can ascertain on inquiry when you forward the instrument.

BLASTING LARGE TREE STUMPS.—"Puddle" asks for directions how this is done.

KEEPING NUTS (G. F.).—We know of no other mode of preserving nuts than in alternate layers with sand in earthenware jars, and those kept in a cold cellar.

PLANTING CUCUMBERS (A. Room).—The distance depends somewhat on the size of the trellis intended to be covered. We usually plant about 18 inches apart, stopping every alternate plant closely to obtain a few early fruits, permitting the other plants to grow more freely and attain strength before bearing heavily. As these, the permanent plants, cover the trellis those stopped more closely are removed after the few early fruits have been cut from them.

CELERY (W. B.).—Seed of the variety you name can be obtained from any of the leading seedsmen advertising in our columns. Its price is a shilling per packet.

STEP LADDER (W. F. Farquhar).—We do not know where you could get working drawings of the ladder, but we think that any carpenter could make it from the illustration.

PARINGS OF HORSES' HOOFES (L. F. O.).—You could not have a better manure for a Vine border than the parings of horses' hoofs and the droppings collected in a forge.

ROSES (William).—The Manetti is so called from an Italian professor of that name. Noisette is named after M. Noisette, a noted Rose-grower who lived at Paris. Celina is fanciful, and may be complimentary to some lady.

ANTS IN GREENHOUSE (F. H.).—The ants are not preying upon your Cinerarias, but upon the green fly with which they are affected. A sponge saturated with treacle and water forms a good trap for ants, which enter the sponge; they can then be destroyed by immersion in hot water. A saucer containing a little raw meat or partially picked bones attracts ants, which can then be destroyed. They, however, do more good than harm to plants in a greenhouse, unless they form nests in the flower pots.

CYCLAMEN (J. L.).—It is small and inferior to many already sold by most florists.

WEEVIL (H. B. Poynton).—The beetle you enclosed is the *Curculio picipes*. It is a well-known pest in the vineyard, and commonly called the Pitch-coloured Weevil.

HARDY RHODODENDRONS FOR LANARKSHIRE (Old Subscriber).—John Waterer, crimson; The Grand Arab, bright crimson; Geranioides, rose with

dark blotches; Erectum, deep pink; Mrs. John Clutton, pure white; The Queen, delicate mauve; Minnie, white with chocolate spots; Zuleika, delicate blush; Sir Thomas Sebright, rich purple; Catawbiense, light purple; Alarm, scarlet with white centre; Old Port, deep crimson.

NORTH WALL (H. Wood).—The Morello Cherry might be kept low enough. We know of no other fruit tree so suitable.

DISSOLVING BONES (Idem).—Bones require half their weight of sulphuric acid for their dissolving.

ROSES FOR A SHADED POSITION (An Anxious Amateur).—In your garden facing the east, and shaded from afternoon sun, you may plant any Roses except the delicate Teas. Try the following by way of a beginning:—Gloire de Dijon, Baronne de Rothschild, Charles Lefebvre, John Hopper, La France, Jules Margottin, Paul Neyron, Sénateur Vasee, Marquise de Castellane, Charles Lawson, Common Moss, Boule de Neige, Comtesse d'Oxford, Centifolia rosea, Abel Grand, and Alfred de Rougemont.

TREATMENT OF PAMPAS GRASS AFTER FLOWERING (G. M.).—You have done quite right to apply a "good manuring" now. Cut down the old blossoms and stalks as soon as they become unsightly, but do not touch a single blade of the Grass while it is alive. Cutting it off prematurely weakens the plant. Experience has taught us that the health and vigour of this Grass is invariably in proportion to the depth and richness of the soil in which it is planted.

FERNS WITHERING WHEN CUT (Tixeront Grange).—It arises from the plants having been grown in a moist, close, and shaded atmosphere. Ferns for affording cut fronds should be grown in a light airy position; and though a brisk heat may be necessary to secure the growths at an early season, it is desirable that the plants be hardened off in a lower temperature before cutting. We always immerse ours when cut for a short time in cold water, colder by several degrees than that in which they were produced; but the main point to be attended to is to grow them in the light so that the fronds may be firm in texture. There is a great difference in rooms for the endurance of cut flowers and Ferns. Our dining-room flowers last about twice as long as those in the drawing room. Coleus sprays keep best when the parts are soft or young; old parts have the stems too firm to imbibe water rapidly enough for the evaporation taking place by the leaves, but they may be restored from flagging by sprinkling them with tepid water and covering them up close for a few hours, a little of the stem being cut off before again placing them in water.

SOUVENIR DE LA MALMAISON CARNATION (Flora).—It is important that strong layers be rooted as early in the season as possible, the plants afterwards being grown in a cold frame, and subsequently in a very light greenhouse. They require rather strong and rich soil, such as is afforded by a mixture of two-thirds of turfy loam and one-third of very much decayed manure. Drain the pots well, and keep the plants scrupulously free from green fly and other insects. Directions for growing Carnations are in our "Garden Manual," price 1s. 6d., free by post for twenty postage stamps.

CAMELLIA LEAVES GUMMY (Gardens).—The glutinous matter on the foliage is caused either by insects on the plants or on some other plants above them, or it is an exudation from the leaves. In either case it is injurious, inasmuch as it causes dust to accumulate and forms a suitable nidus for the spread of the black fungus. Every leaf should be sponged, using a warm solution of 2 or 3 ozs. of soft soap dissolved in a gallon of water. After the foliage has been washed quite clean, both on the under and upper surfaces, the plants should be thoroughly syringed with clear water. If syringing is continued once or twice a day throughout the growing season, and the plants are in good soil and kept moist at the roots, they cannot fail to improve both in beauty of foliage and in profusion of flowers.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

FIELD CULTURE OF POTATOES.

UPON farms situated near towns, railway stations, or otherwise favourable for the sale of potatoes we consider them one of the most profitable crops which can be grown, seeing that it is not only a paying produce but economical in other respects, because if properly managed it is the most cleansing crop that we have in field culture, leaving the land in an excellent state either for barley or wheat. The latter we have grown on mixed loamy soils alternated with potatoes for seventeen years in succession, with sometimes stubble turnips after the wheat fed off by sheep, the potatoes being planted early in the following spring. With respect to the culture of potatoes in the field, the nearer it approaches to garden culture the better, except, however, using the plough instead of the spade. Land intended for potatoes should always be cultivated in the autumn whether foul with couch or otherwise. We often find on loamy soils a few bunches or tufts of couch grass, which it is best to fork out just previous to ploughing the land in the autumn, then plough a good depth and allow the land to lie all the winter without further work. In early spring if any lumps of couch make their appearance we then fork them out as before, after which the land will require but little or no horse labour beside the ploughing at planting time, and this plan commends itself because the manual labour is so much the cheaper than horse tillage. If, however, the land is found to be very foul in the autumn a regular course of fallowing

must be gone into. Ploughing or rather raftering the first thing, which is half ploughing, then scarify across the ploughing and remove the couch by continuous harrowing, rollings, &c., but we prefer to draw the couch away to heap or spread on meadow land instead of burning, simply because it may be got rid of with less work, and without hindrance if the weather is showery, which also enables the further work to proceed more quickly. After the fallowing or rather cleansing is completed, then plough the land a good depth to lie and take the changes of weather—frost and rain during winter. The soils best adapted for potato culture are sand, sandy loam, or hazel loam on gravel, and as we advocate the early sorts as being most profitable, these are almost the only soils which will be ready at the earliest period. Two ways of planting are advocated, and it must be decided which method shall be adopted at the time of ploughing before the winter, whether the plan of planting on the ridge or on the level. If the former the ground should be laid into ridges or stretches about 2 feet wide during the winter, otherwise the land may be ploughed and left during the winter months in the ordinary way. The question of manuring now arises; and when the land lies in ridges, if farmyard or town dung is used, the dung will be laid between the ridges split with a double mould-board plough, the sets of potatoes having been planted in the furrows with the dung. In the event of using artificial manures they may be sown broadcast; when the potatoes are set the ridges are split as before and the work accomplished. When the potatoes are to be planted on the level, and which is certainly the easiest plan, the sets are placed in every second or third furrow according to distance apart required. The planting is usually done by women, they doing the work best and most expeditiously, and a man with a seedlip full of manure following strewing the manure into the furrow upon the sets, damp ashes being mixed with the manure to prevent its being driven across the land by the wind, instead of falling directly into the furrow. We do not advocate the application of farmyard or town dung for several reasons. The first is, we have found that in the time occupied by laying-out and spreading the dung the land might be planted and finished-off if artificial manure only is used, because the work of ploughing and planting goes on simultaneously and without delay, and we have often noticed that whilst dung was being laid out the weather changed before the land could be planted, involving sometimes a loss of some days, or may be weeks, and this is a matter of immense importance in potato planting particularly of the early varieties. We also prefer artificial manures to dung of any kind; our own experience has proved that 4 cwt. per acre of Peruvian guano is quite equal to any amount or quantity of dung which can be applied, for we have frequently seen the best crop after guano, compared with a double dressing of rich dung. We have also noticed the result of experiments, the best results being obtained by the application of 4 cwt. of mineral superphosphate, 2 cwt. crude potash salts, and 2 cwt. of sulphate of ammonia per acre. In other cases nitrate of soda in conjunction with the mineral superphosphate has been very successful. One of the most important matters connected with potato culture in our own experience, is the fact that crops suffer less from disease when grown by the application of the hand-tillage manures than when produced by dung, and we have considered the cause to be that all dung opens the soil more than artificials, and allows the atmosphere to act upon the tubers, and this idea is supported by the fact that we have always found the soundest tubers were those at the bottom of the furrow or ridge, and farthest away from the atmospheric influence, and it also appears from the latest theory and experience of Mr. Smith, as related in the "Journal of the Royal Agricultural Society" in 1876, that the disease is produced by fungus, the germs or spores of which propagate the disease, and he recommends that all haulm should be destroyed by burning, but he says that the tubers may and often have the oospores attached to them, and although this theory is no doubt correct, yet there are certain conditions of the atmosphere most favourable to the spread of the disease. It is also known that it is very rare for oospores to propagate and produce the disease until after

a certain period of the year, varying no doubt, but seldom appearing before the middle of July. Thus it seems our best protection is to cultivate the early varieties which come fit to dig and sell, so that the land may be cleared before the end of July, the next crop also will then be got-in in good time. The later varieties of potatoes for use in the winter months are, however, a great essential to the consumers, and will have to be provided for on the home farm to a certain extent, and notwithstanding the liability of the late sorts to suffer from disease, there are certain methods to be adopted by which the disease may be avoided or diminished. 1st, The land to be planted should not have borne a potato crop the previous year; 2nd, That artificial manures are safer to use than any ordinary dung; 3rd, That the selection of sorts is of the utmost consequence, that any newly-propagated sort is more likely to evade the disease, and this accords with Mr. Smith's theory; and 4th, That the change of seed should be obtained from a different soil and climate from that in which they are to be planted, and we have never been more successful than when we have obtained the seeds or sets from the northern counties, or Scotland; and lastly it is essential that all keeping varieties should be allowed to remain in the land undisturbed until quite ripe and matured.

We will suppose the cultivation for the late sorts to be the same as for the early, but in planting we prefer that the rows should be 30 inches apart and the sets in the rows rather wider apart than for the earlier kinds. As to the seed, whether whole or cut, we always find that the kidney-shaped should be whole tubers, as they have generally but few eyes. The other round or oblong sorts will generally succeed well if cut into sets; and it is a saving, because eighteen or twenty bushels cut will plant an acre of land, whereas if whole tubers are set, even if small tubers are used, it will take several bushels of seed extra. We have found that the best and most loamy soils suit the later sorts better than the light or sandy soils. In the treatment of the plants after they have left the ground horse-hoeing and hand-hoeing should be continued until the plants are strong enough to be hilled or earthed up; and we prefer that a single horse plough be used rather than the double mould-board plough, as the hills can be more effectually made up by the one-horse plough. We, however, wish to mention a practice of our own adopted in cultivating late potatoes. We have been very successful in growing a crop of turnips with the potatoes, and when this was intended we sowed over the ground 1½ lb. of turnip seed per acre of the Greystone variety, or any of the quick-growing sorts, just before hilling up, and in the act of hilling the potatoes the turnip seed was buried on the hills; and whenever the season has been moist and favourable we have grown as much as twenty-eight tons per acre of turnips, some of which were sold with the potatoes at a good price. Other portions were pulled and used for feeding fattening oxen and sheep. When grown in this way of course the turnips cannot be hoed or singled out in the usual way, but they throw up so much green that as soon as the potato leaf falls they effectually keep down the weeds, except a few tall sorts which we hand-pull. The small short-hauled sorts of potatoes are best adapted for this double cropping, particularly the original white-blossomed Fluke, which we were the first to introduce into our district and first obtained from Lancashire. Our practice being to sell the potatoes in the ground, the buyer to dig and remove the crop at a certain period, enabled us to take away our turnip crop in good season in the following manner: The women pulled and carried in their apron laps the turnips off the potatoes by clearing fourteen hills at a time; the potato-diggers followed, clearing the fourteen hills, and thus enabling the carts to enter and remove the turnips. In this way each crop was removed in good season. It will of course be noticed that this plan cannot be carried out with any variety of potatoes which make gross foliage. Another point is, we always found our potatoes much sounder under turnip double culture than when grown alone.

WORK ON THE HOME FARM.

Horse Labour.—Ploughing and the usual tillage for Lent corn will now be going on, and the strictest economy should be observed, seeing that horse labour is such an expensive item in farm management. When we have horses stout enough after any first ploughing, one horse is only required if the one-horse plough made for the purpose is used; but what is better still is the double furrow plough drawn by two horses, as it does extremely well where the land has been previously moved by tillage. Horses will also be engaged in rolling the meadow land previous to laying up for hay, this being the proper time for laying up, and before the ground gets too hard. After being rolled no cattle should be allowed to feed in meadows intended for hay crop; and this is now the proper time to apply artificial manures to meadow land. It should be done at once, in order that the manure may reach the roots of the grasses at the earliest period, and this is more especially required on dry soils, because, if the land is laid up early the grass will make an early start and keep the land moist if a dry season should succeed. The manure we recommend is 2 cwt. per acre of Peruvian guano, or 1½ cwt. nitrate of soda, with 8 cwt. superphosphate. If, however, the meadows show any moss

the ground should be harrowed before sowing the manure. This will weaken the growth of moss, and the manure will cause the grass to overpower it before the hay is cut. Should the pasture be bare of herbage sow in 8 lbs. of suckling per acre. If the trenching in the meadows has not been done it should be done off-hand and before rolling. We like narrow trenches best, about one-spade width. These do not tread-in so quickly with cattle as wider ones, because the cattle step over them instead of treading them in.

Hand Labour.—Some men may now be employed by screening chalk for the purpose of using with manure when turnips are drilled instead of ashes, particularly if land is not very fresh in chalk, and on some farms the chalking to the full or usual quantity per acre is expensive; for economy we therefore drill chalk about twenty or twenty-five bushels per acre. This effectually prevents club roots in the Turnips. Upon the majority of mixed soils, either gravel, sand, or clay, it is seldom applied in this way without direct benefit, as the plants are sure to make a more healthy growth. The screening when convenient may be done at the pit, otherwise in an outhouse or shed, as the chalk should be quite dry, and when it is at the homestead it will serve to employ the men of a wet day. Women should be employed picking stones, &c., off the meadows to be now laid up for hay. Both men and women may be now employed in planting cabbages if not previously done in the autumn. We rather like the spring planting best, because in case of hard frost or snow the larks, wood pigeons, &c., and sometimes ground game damage them very much. Those planted about March will come for use early and before anything else is fit for dairy cows of the root kind. We have seen also some very fine pieces of the thousand-headed cabbage. They give a large produce of food, which is much relished by cattle and pigs, and is very nutritious. It is the common practice to plant with the setting stick; but we have used the spade for planting for many years and much prefer it. When the men are used to the work they will do it very quickly; they use a light or half-worn spade, and introduce it at an angle of 45°, and when the earth is just lifted a woman following each man introduces the plant at the back of the spade, holding it in position until the spade is withdrawn. The man then puts his foot next the plant, which presses the ground firm on the plant. This enables the man to take another step and introduce the spade again. We have employed three men at a time on certain occasions, and they do the work as fast as they could take a steady step, the women being also accustomed to the work, and boys to bring the plants or extra women do it very nicely. In this way a great deal is planted in a day, and safer for the plants to take than when the setting-stick is used, at any rate if the weather is dry, for the dry top soil does not run in behind the spade as it does into a hole made by the setting stick; and if the ground is rather damp and kneads with the stick it does not prevent the proper planting with the spade; again, the advantage of spade over stick is that the roots of plants never need be doubled up, as they often are in hurried planting in the usual way. Spade planting, too, suits long-stemmed plants, particularly broccoli and thousand-headed cabbage, as they are usually long in the stems; and when the weather is ever so dry when planted at the back of the spade the roots go down at once into the bottom of the furrow, and have the advantage of the moisture, nor does the dry soil run in with the plant. We have grown Broccoli planted in this way by one ploughing after a cutting of trifolium. The heads cut in the following winter and early spring were very large, and proved to be a paying crop. The stumps, of course, were large also. These we always cut off at the rim formed by the fall of the first leaf; and we have weighed the stumps and had 14½ tons per acre. These were cut into lengths of 2 inches and passed through Gardener's turnip cutter, and mixed with meal they fed our fattening oxen as well as any swedes we ever used.

MANAGEMENT OF PASTURE AND PARK LAND.

THE writer of the article on page 95 cannot have had much if any knowledge of Cheshire in saying "Pastures resting on marl do not require bone or mineral superphosphate," and for which he gives reasons.

Probably nearly if not quite one-half of the land in Cheshire is more or less on a marl basis. I have lived in the county all my life, and in my recollection, when bone was scarcely known as a manure or too expensive for general use, large breadths of the Cheshire pasture lands were of that nature that it has been said of them "It would take an acre to keep a peewit"—cold thin-skinned clays, with "whipcord," rush, and pink grass predominating; but by the application of bone dust for a top-dressing, after drainage where necessary, such lands have been permanently increased in value 25 to 50 per cent. and more, the change being sometimes the greatest on the poorest land. The bones chiefly used formerly were raw and coarse-ground, and applied at the rate of about 20 cwt. to the acre. The effects have been visible in many instances for twenty years where the land has been kept in pasture. Bone, both boiled and raw, is still extensively used

on the pasture and mowing lands as well as in tillage, but generally applied finer-ground and in smaller quantity per acre.

On many farms within my recollection there was scarcely a field without a marl pit in it, marling being once an institution in Cheshire; but this has long been superseded by artificial manures and the increased cost of labour.—V.

THE PRICKLY COMFREY.—A correspondent informs us that he has three hundred sets of this, and he wishes to give them the best assistance with a view to obtain the greatest amount of produce. The land is not rich, and he proposes placing dung on the surface and raking it off when the plants commence growing. He asks if those who have had experience in growing Comfrey will oblige by communicating it to the Journal.

PEAFOWLS.

YOUR correspondent "C." may like the following additional notes on the Peafowl. They are not quite hardy, some having been frozen to death in a severe winter whilst roosting on the trees of Brechin Castle, N.B., and also near Carlisle. Fifty years ago they bred wild like Pheasants at Ashley Park, Walton-on-Thames, and were a suitable ornament to that fine old Elizabethan domain. I have seen from twenty to forty there at one time. In spring the cocks would each appropriate a corner of one of the lawns, spreading his tail whilst the hens would walk in admiration round him for hours. The latter would later on keep out of sight and away from the cocks in the wildest part of the park for breeding, returning to the lawns towards autumn, where they roosted in some old cedar trees, each usually accompanied by three or four young ones. They were left entirely to themselves and found their own subsistence. Occasionally stray birds would come from the adjoining parks of Oatlands and Burwood. The cocks were constantly fighting with the Turkeys. The young birds were shot occasionally and found good eating. They were mostly of the purple-winged variety. The full plumage of the cocks did not come, I think, till the third year.

Some of the finest Scotch fir trees in England are in the same park, Herons came regularly every January and bred in them, going to a distance for their food.—J. F.

ARE SHOWS ESSENTIAL TO THE PATRONAGE OF FANCY PIGEONS?

THIS is the question I stated that I should endeavour to answer in the negative. Grant the benefit which exhibitions have done the fancy, yet that fancy existed and prospered, though on a smaller scale, as we know, quite a hundred years before shows were heard of. If, then, shows ceased the culture of Pigeons would not cease. First, there have always been a certain proportion of the very best fanciers who would never show at all. They either loved their birds too much to like to part with them or to see their plumage spoiled—that beautiful bloom, so plum-like (on the Carrier especially), rubbed off, as rubbed off it is by railway journeys and hot Birmingham and Birmingham-like places of exhibition. If you want to see the difference and gain to the birds by non-showing, see these just once a-year, and once a-year only, taken from their lofts and shown at the Peristeron annual Show at the Crystal Palace. How different their look to the faded soiled appearance of those sent in succession to all the great shows of England! It is the plum without the loss of bloom, and the plum packed and sent in hampers to a distant market, to borrow an illustration not unsuited to the columns of a journal of horticulture. If shows have to be more or less given up for the commercial reason of their not paying, still I hold that Pigeons need not be given up. There is also too great a love of prizes, and in some a love of prizes rather than a love of the beautiful birds. Prizewinning is one of the weaknesses of the day. The man runs just as well whether he receive a prize or not, so of the athlete, &c. In former days none kept Pigeons, or rather continued to keep Pigeons, who were not genuine fanciers of the beautiful birds. There were two classes of fanciers—those by far the higher, as to the quality of their birds, who belonged to a Pigeon club. There were and are still among the *élite* of the fancy men of great discernment as to pedigrees and quality, deeply skilled, too, in the mysteries of matching and pairing and feather-breeding. What great practical knowledge such now have, and what very high-class enjoyment their hobby yields them—never, indeed, reaching perfection, but labouring on, trying to get further and further to and nearer and nearer on the road to absolute success. These are the fanciers; these are they who enjoy of all things fancier-talk, and as a consequence the society of brother fanciers. There being now better birds in England than ever, and easier communication between place and place, these high-class fanciers have the advantages of seeing each other and each other's birds easier than in former years. If a hundred years ago a Pigeon club could exist and flourish, though limited very much to London fanciers, much more should one exist and

flourish now, or rather many of them, and these do not owe their life to the generally received Pigeon shows. That London will be the head of the English fancy is natural and suitable. Then there are our Scotch friends, to whom in regard to the revised and improved Pouter so much praise is due. Glasgow, I suppose, will be the head quarters of the Scotch fancy.

Coming back to England, there is much to be said in the probable extension of the high-class fancy from the greater numbers of London people who now reside a few miles from the great city. Not now are Pigeons kept so often in a London attic as in the last century and the earlier part of this, but in the wired-in loft at the bottom of a villa garden, or, better still, flanking a sitting-room, and the pretty birds visible and watched from the windows.

But there is another class of fancier who is still less dependant upon shows, I mean the man who keeps Pigeons for amusement only, often as ornaments to his place as others keep Gold and Silver Pheasants. These fanciers have always been numerous, and have perhaps got as much pleasure out of their birds as any of the highest fanciers. Nothing looks prettier than a country place with, instead of common birds, good fancy Pigeons flying about, taking their winged circles, strutting, walking, flying, appearing now at this part of a domain, now at another, coming for their morning meal or for their crumbs from the children's loving hands. These fanciers usually keep several varieties; not cultivating any one so very highly they can better do this, and as a reward for their catholic taste having great pleasure from watching the habits of the different varieties of birds brought under their eyes. I have observed that such general fanciers have now far better birds than formerly, when any bird with a larger crop passed for a Pouter, or with a longer beak and heavy wattle passed for a Carrier. Here we have an indirect result of shows, for the selling class has supplied such fanciers full often.

Thus I have endeavoured to prove the point which I undertook; at the same time I say, Have shows where possible.—WILTSHIRE RECTOR.

CRYSTAL PALACE BIRD SHOW.

THIS Bird Exhibition opened on the 28rd February and closed on the 1st inst. Undoubtedly it may be said to be *the* show of the year as regards cage birds, comprising as it did all the known varieties of the Canary tribe and British and foreign specimens. The number of entries fell short of last year, which did not surprise us considering that a show took place a few days previously at the Alexandra Palace. However, there were the goodly number of 1327 entries, made up with fifty-six classes of Canaries and Mules, the remaining forty classes having been devoted to the British and foreign birds. The high-coloured Canaries presented their usual warm appearance as regards colour, but we were sorry to find that, even with the high colour brought about with the cayenne food, some specimens in Class I were proved to be artificially coloured far beyond the effect produced with the stimulating condiment. The birds were excluded from competition, and not only those spurious-coloured birds in the Clear Yellow class, but all specimens entered by the same exhibitor, hailing from the salubrious town of Brighton. With this exceptional drawback the Canaries and Mules were fully equal to past shows. We noticed that the full complement of six classes were formed for non-peppered birds, and there was an increase in the numbers exhibited, notwithstanding that the Show fell short in entries generally. The British birds were in full force, and some lovely specimens of the Bullfinch, Goldfinch, Chaffinch, Linnet, Redpole, and Siskin, and many others were shown. In the two former classes alone there were over two hundred exhibits. The migratory and foreign birds were generally in good plumage, and their varied colours and talkative habits most attractive. The Show was well conducted under the guidance of the Deputy Manager (F. Savage, Esq.), who had a very efficient staff of officers at his command to carry out their respective duties.—G. J. BARNESBY.

RABBITS: HOW TO IMPROVE THE LARGER SPECIES.

LOP-EARED RABBITS have grown and improved with a rapidity that is sometimes surprising. The length of ear attained now is 6 or more inches greater than it was a few years since, and corresponding improvements have been made in size and colour. It is very important that steps should be taken to improve the foreign varieties, since they are very likely to degenerate. A few suggestions as to how to improve the breeds, chiefly in their propagation, may be useful. It is necessary to subdivide the remarks, because the same fancy that demands a large Belgian Hare also asks for a small Dutch, and the directions that would improve the former would spoil the latter. The benefit in the latter variety is supposed to be that when small the colour shows itself to much greater advantage. This may be so, but the slight benefit derived is much less than the harm caused by the loss of size, strength, and

constitution. Of course many general rules apply equally to foreign varieties as to Lops, but there may be some little matters specially to be attended to. Carefully see that both of the proposed parents are constitutionally strong, and let them be of good development, as already recommended. Avoid blood relation in any case, especially in breeds that are all of one colour, as these are apt to deteriorate very much by the process of in-and-in breeding, the colour losing its desired shade and becoming often streaky and pale; also be careful not to tax either parent too much, and let the doe's hutch be made in the manner already recommended.

In the *Patagonian* size is of great importance, therefore let both parents be healthy and large, though not very fat, the mother being large and strong. Some difficulty may be found in getting them to breed, and they should be carefully watched and paired in the first heat if they are not too young. Allowed to go off they sometimes fail to return for a considerable time. Good feeding during the time the young mother carries her young should also be a point, and of course doubly so when suckling. The breed are uniform in colour, which should be preserved dark, and consequently discretion cannot be thrown away in crossing the different shades. The ears sometimes droop too much. As this is because they are a little long pair them with short-eared varieties, and the defect in each case will cure the other. The shade should be as perfect as possible in both parents, light being paired with dark. Avoid, if possible, crossing with an animal of this variety that is at all spotted, as it is generally a sign of weakness that very frequently re-appears in the young. Size and strength must be great features, while colour and shade should not be neglected. A large hutch to enable the mother to have plenty of exercise is necessary for the proper muscular development of this variety.

Size is also a feature in the *Belgian Hare*, which should not average more than 2 or 3 lbs. less than the *Patagonian*. It is not, however, altogether so great a point as with the *Patagonian*, there being very many other points of great advantage in their improvement. Size must be carefully rendered as relating to the bony structure of the animal, and the whole idea should not be gathered from the weight. If weight is to be the guide any small one fatted up might be taken as a large Rabbit, which it would not be. The shade and ticking of each parent should be perfect, or nearly so. If either parent happens to lack any of the qualities necessary, if it has no tipping or too little, or if the shade be too light, it should be paired with one possessing all the necessary points, or, better still, should not be bred with at all. The shade should be bold and kept as near to the perfect standard as possible.

The *Silver-Grey* is different in many respects to either of the two preceding varieties. It is much smaller than the *Patagonian*, and a pound or two less than the *Belgian Hare*. Still it is in every sense a large and compact Rabbit, and large because the variable fancy does not object to size, and it is therefore cultivated. Shade is the great thing, and therefore Rabbits of the most approved shades should be selected, and of course they should be of the best breeds possible. Offspring of prizewinners should, where practicable, be used, as the shade will be more likely to be what is considered best. Several excellent stud bucks of this breed can now be employed at a very low fee, and advantage should always be taken of this opportunity to improve the stock and introduce fresh blood. Rabbits with white noses or very black heads should not be used for breeding, as these are bad qualities. Weakly specimens should never be used, as they are likely to have offspring with white patches on the skin, which detract from their value for furriers' purposes.

The *Angora* Rabbit, perhaps, is the most beautiful of the group of varieties under this head. Its points are very simple and plain and very easily improved in breeding. So many of the specimens are white that we may take them all so. The great features left will then be size and more particularly length of the wool. If the parents are healthy size may safely be left to take care of itself. Both of the parents should be over 6 lbs. in weight and not very fat. The most woolly couple that can be found should be used, and they should be either complete strangers or only very distantly related.—G.T.A.

VARIETIES.

THE organising Committee of the Poultry Club have elected the original members, some 125 in number, including most of the leading fanciers. We hear it was resolved that Mr. O. E. Cresswell of Early Wood, Bagshot, should be Treasurer *ad interim*, and collect all subscriptions for the current year by March 15th. He will then send to all full members voting papers for the election of officers and committeemen, which papers must be returned to him by April 1st. The list of the whole Club with its officers will then at once be published, subscriptions handed over to the Treasurers elected, and the responsibility of those who have organised it will be at an end.

— We hear that considerable changes will be found in the poultry schedule for the Bath and West of England Society's Show to be held at Oxford in June. The Society is very conservative, and has heretofore not adopted the modern system of

classes for single hens. This year, we believe, the exhibition of pairs of hens will be abandoned. We much regret this, for it is almost the last show of any eminence (save Oakham in the Dorking classes), where the pretty sight of well-matched pairs of hens can be still seen. The real origin of the single hen system was a desire to get more entries with the same entry fee for one hen as formerly for two. The reason always alleged in its favour has been the opportunity thereby given to small exhibitors who cannot match two hens. There is something in the argument, but when there are dozens of shows where single hens are shown (and the Bath and West of England Society must be far above all poultry attempts to gain a few additional entry fees) we sincerely wish that in this case pairs of hens might be continued.

— THE accounts of hatching thus far are much better than those of the last two springs. Eggs, however, have been scarce, and, though the winter has been so mild, we never before had so few in the months of January and February.

— THE increase of the Pigeon fancy has lately been alluded to in our columns; one sign of it is that several well-known poultry fanciers are becoming frequent exhibitors of Pigeons. Mr. T. C. Burnell, so famous for his Dorkings, was lately elected a member of the Peristeric Society, and his Turbits and Dragons have already made their mark.

— A TESTIMONIAL is being got up to Mr. Merck, so long Honorary Treasurer to the Peristeric Society. Subscriptions are received by Mr. G. South, 40, New Bond Street; Mr. Hedley of Redhill; Mr. P. H. Jones, of Raneleigh Cottage, Fulham; and by other members of the Society.

— WE regret to learn that legal proceedings are being taken against the Secretary of the last Bristol Show for non-payment of prizes.

— A CIRCULAR has lately been sent to us of a patent "egg preserver" sold by John Hargreaves & Co., 38, Union Street, Borough, S.E. It is a fluid for the "coating" of eggs for winter use. It is sold in 2s. bottles, and "stands" for the operation of coating cost 2s. each.—C.

— WE are requested by the Secretary of the Royal Commission to announce that the French authorities have extended the time for making entries to the horse show at the Paris Exhibition. Intending exhibitors should apply for forms, which must be filled up and returned not later than the 20th April next, to the Secretary to the Royal Commission, Canada Buildings, King Street, Westminster, S.W.

WINTERING BEES.

THIS subject is both interesting and important, and therefore ought to be well ventilated. The discussion of the subject will sharpen the attention and observation of bee-keepers in wintering bees in future years. When opinions are divided on questions of importance fair and friendly discussion helps to enlighten public opinion, which is the aim of all right-minded writers. The "RENFREWSHIRE BEE-KEEPER" says "Every bee tree in the backwoods of Canada is a standing proof that bees survive without the slightest artificial aid; if it does not bees would entirely disappear." I submit that no one can prove that every bee tree in Canada protects its inmates from injury by cold or damp. For aught we know, three-fourths of the swarms in the backwoods are killed every severe winter. If some strong swarms survive a severe winter they prove that bee-keeping is possible in the rigorous climate of a Canadian winter. I have met with but few records of wild bees or fugitive swarms in Canada or of honey harvests from them. Things are very different in warmer countries. In California, for instance, bees multiply fast and yield great harvests of honey. No one will, I think, question the fact that countries remarkable for their mild winters and warm summers are better for bees than are colder seasons. The cold and unfavourable seasons we have had of late years have nearly rid the northern counties of England of wasps and humble bees, but doubtless with a good season or two they will multiply again.

Your correspondent next refers to Quinby's system of inverting hives when placing them in their winter quarters—namely, thick-walled houses without windows. The hives were inverted with a view to let the breath of the bees pass off. We have always thought that Mr. Quinby's system of inverting hives in winter is a very foolish and harmful practice, for in this position the excrements of the bees could not drop out of but into their hives, and thus pollute the combs. But it should be borne in mind that the American bee houses are built and used to prevent the destruction of life by cold.

Our Renfrewshire friend next favours us with an extract from the writings of Mr. Langstroth. Writing on the 30th of January, 1857, Mr. L. says, "This month has been the coldest on record for more than fifty years. My hives have been exposed to a temperature of 80° below zero. . . . No. 1 was again examined and found in good condition. The central comb was almost filled with brood, sealed and nearly mature; all the combs were free from mould, and the interior of the hive was dry." Mr. L. adds, "Mr. E. T. Sturtevant of Ohio, so widely known as an experienced

apiarian, in a letter to me thus gives his experience in wintering in the open air. No extremity of cold that we ever have in this country will injure bees if their breath is allowed to pass off, so that they are dry. I never lost a stock that was dry and had plenty of honey. In the winter of 1855-6 I had twenty hives standing in a row. One of them was suspended 20 inches from the ground without bottom board, and with eight holes at the top all uncovered. All (nineteen hives) perished through the severity of the winter, while the open and exposed one came out strong and healthy." I am obliged by the reproduction of this evidence twenty years after it was given in America. At first sight it seems strong enough to convince the whole world. Has it done so? Has it been confirmed by the experience of American apiarians during the last twenty years? Some of my letters on bees are honoured by perusal and comment in America. Will some of the enlightened men there kindly notice this letter and tell us whether bee houses have been abandoned as worthless protection in cold weather, and whether the question has been settled or otherwise as to the harmlessness of extreme cold in winter to bees kept dry and well ventilated? Mr. Langstroth's statement of sealed brood in a healthy state in a temperature of 80° below zero is to me incredible—at least 40° beyond the range of probability. Would Capt. Nares and the men of the expedition that went to the icy regions to find the North Pole believe that bee brood could be fed and hatched in a temperature of 80° below zero? Dr. Cohan, one of the medical officers of the expedition, on his return to England fell into the arms of his brother and wept like a child in attempting to describe the awful human sufferings and deaths he witnessed in the cold regions.

I have seen brood in all stages killed outright by 12° of frost in hives partially covered and protected. Even in the summer weather of England, with 60° or 70° of heat, I have seen sealed brood perish when the bees of the hives could not cover it. This I have seen often. Bees are thoughtfully or instinctively concerned for the life and well-being of their brood during a change of weather from heat to cold. When hives are full of brood and the weather becomes cold, say in April and May, the bees try to keep the cold out by clustering in the doorway. This manifestation of care on the part of the bees is a proof that their brood is in danger, even in a temperature of 60° above zero. Here we may fairly notice the fact that young bees after they are fledged and hatched are often chilled to death in the colder days of English summers, say in an atmosphere of 60° of heat. Thousands are chilled to death by cold in their first attempts to gather honey. Who has not seen and pitied young bees perish on the flight boards of their hives, with pollen on their legs, unable to enter?

How it was that Mr. Sturtevant lost nineteen hives out of twenty is not clearly stated. His hive that survived the severe winter named had no bottom board, but was merely suspended and exposed in the air to allow the breath of the bees to pass off. Are we to believe that the nineteen hives were lost because they had bottom boards? If I understand the quotation aright this is what is meant. It is hard to believe that nineteen stocks out of twenty were lost owing to the use of bee boards. I shall be glad to learn that Mr. Sturtevant's statements have been confirmed by later experience, and that bee boards are better off than on hives in winter.

I will now leave the American evidence and give a little of my own experience. I do not remember losing more than one hive of my own from cold, but I have known many lost in England from cold when their combs and hives were free from moisture of every kind—as dry as it is possible to find them in any place. And what shall I say about moisture? No English writer on bees—no half-dozen of English writers, have said half so much as I have said against moisture and in favour of ventilation of hives, and the injury resultant if not ventilated. But the injury which I have seen from moisture inside and outside hives has been injury to combs, not directly to bees. Though I have seen hives wet enough both inside and outside, and the combs of such hives (outside the bee nest) perish and crumble into dust on being touched. I have never known a hive killed by moisture. When I kept wooden hives I found their insides streaming with moisture, which rotted the combs but did not kill their bees. I have seen hives that were driven from their stands by winds and winter storms picked up drenched and dripping with rain, replaced on their stands in this state, and come through winter. I have lost hives from foul brood, from hunger, from dysentery, from loss of queen, from scarcity of bees, one from suffocation on the way to the moors, one from winter cold; but looking back over fifty years I do not remember losing one from moisture.

Since I sat down to pen this letter a great naturalist has called on me. I have told him what I am writing about. He has not studied bees, but remembers being at Dudley in the winter of 1860, when the mercury fell to zero one night. A lady of his acquaintance there had just begun bee-keeping. Feeling the effects of severe frost on herself she took out four blankets and wrapped them round her bee hive. After the frost was gone her hive was found alive and all her neighbours' dead. Our friend's picture of cottagers' hives and their defective covering is rather over-coloured, but true in many instances. But the frost of 1860 swept

the bees out of many bee houses in England, which stood nearly empty for some time after.

I now leave this subject for a season, with the hope that many of our readers will carefully study it in all its bearings, for it covers a great many collateral points and practices of great importance in apiculture.—A. PETTIGREW.

FEEDING BEES.

I HAVE lately received several letters from readers of your Journal asking for advice as to the best manner of feeding bees at this time of year. Since I cannot reply to these separately I ask you to insert the following account of what I am doing with my bees at the present time. The genial weather has caused many spring flowers to bloom unusually early this year, and during the whole of February the bees have been airing themselves, excepting on two or three wet and cold days. This activity, together with the presence of a small amount of pollen collected, naturally has caused brood to appear in all hives.

I began feeding my bees on February 20th, a bright warm day, having previously ascertained that they all had a sufficient supply of honey still stored up to last them during the next two months. All floorboards were made clean, and any quilts which showed signs of dampness thoroughly aired. Home-made barleysugar is the food I give at this season. This cannot be carried down too fast, and is a constant and steady stimulant to the breeding powers of the queens. I have been particularly asked how I give the barleysugar. I make my quilts with a hole in the centre of each. During the winter a square pad is placed over this hole. Now the pad is lifted, a piece of barleysugar placed on the quilt or on a piece of wire net over the skeps. A small deal cover (four pieces of 2-inch board, thin deal wood nailed together like a box without top or bottom) is placed over the barleysugar, and the pad over the box. The cover of the hive is then readjusted, and all is left warm as before, at the same time equally well ventilated. I employed sections of supers with the glass end for this purpose, in order to see when the supply of barleysugar wanted replenishing. This did not answer. The moisture from the hive condensed on the glass lid, dropped on the sugar and caused it to run down between the bars. By the present arrangement it continues solid until the bees have carried off the last morsel. About 2 ozs. is sufficient to place over each hive at the time, and I find that when the weather permits the bees to attack it as at present this amount is required twice a-week.

Pea flour as artificial pollen I began giving at the same date. I place a frame light, leaning against a long box—against a wall would do, facing south. Under this I have two large skeps loosely filled with clean deal shavings, and with pea flour scattered on and among the shavings. Hundreds of bees are to be seen diving into this "meal bin" and at every hive you will see the white-coated workers entering to be well cleaned by their sisters. After a dive among the shavings they generally settle on the sides of the skep or on a blade of glass and pack away as much as they are able of the flour into their pollen baskets. Thus some are carrying down the sugar, some are bearing home the pea flour, and to some another division of labour is apportioned; this is the duty of carrying home water. Great quantities are now being required, and as breeding proceeds greater quantities will be needed. In a sheltered corner I place several large flat pans. Again I employ shavings, filling the pans with them and then pouring in water. The bees have foothold on the shavings and easily take in a supply of water. This assistance given to them is fully appreciated by them. Formerly they drew their water from a large butt, standing head downwards, on the sides within. Many were drowned. The pans are placed close to the butt, and this season I have seen two drowned bees in the butt; they must have been very young! I have not seen one drinking inside the butt.—P. H. PHILLIPS.

BAR-FRAMED HIVES AND THEIR MANAGEMENT.

No. 4.

AFTER seeing to the due arrangement of combs and the perfect cleanliness of his hives, the bar-framist sets himself carefully to watch his bees to see how far the early signs of promise are followed up by a visibly increasing prosperity. The early signs of promise are manifest in all hives which send forth pollen-gatherers on every favourable occasion of mild weather and warm sunshine. The more of these in any case and the more active and persevering the greater his satisfaction; but it does not follow (he knows too well) that this promise will in every case be fulfilled. Queens sometimes die in the early months of the year, in which case pollen-gathering gradually ceases. Here is a case requiring careful treatment. Should this manifest itself not earlier than April, or even the last week in March, all may yet go well. If the bees discover their loss in good time and set about rearing a queen there will surely be some drones developed in the neighbourhood sufficient for the young princesses. This should be ascertained by careful examination of the frames. If the loss of the old queen

took place earlier in the season, or if the bees are too few in numbers to give good hope of successful recovery, it will be found very profitable to break up the failing hive and to join the population to some other stock which may be most in need of such addition to its strength. This can be easily effected by taking out of the one hive some of the still empty combs, and replacing them by such brood combs as may happen to be found in the queenless stock, after previously sweeping the bees off them. This done, the queenless bees should be carefully collected in a small box and set over the centre hole of the stock to which they are to be joined after a sprinkling with sugared water. They will in due course find their way down. Another method of joining them is to collect the bees by driving and dash them out in front of the hive to which they are to be joined. A slight sprinkling with syrup as they are on the march will cause them to be well received. This addition to the population of the strengthened hive will make a great difference in its coming prosperity. As to the hive thus broken up, its bar frames can be cleaned out or re-adjusted, so as to be ready for the first swarm. It will be a material help to the new colony, and enable them to make such a start as will probably allow of one or more supers being taken off in excess of what the bees would otherwise have collected. Here, again, we cannot fail to observe the great advantage of the bar-frame system over the old skep fashion, in the ease and facility with which the mischief going on in any hive can be detected, examined, and remedied with the least possible disturbance and the greatest economy of material. Thus prepared, and with all his hives in the best possible working order, the bar-framist approaches the busy season, so full of interest and only too short, which is ushered in by the month of May and the swarming season.

The questions now anxiously debated in the mind of all bee-keepers are twofold. First, How to prevent swarming if the apiary is sufficiently large, and thereby to secure a proportionately larger harvest of honey. Secondly, To avoid, if possible, the escape of swarms, which oftentimes makes bee-keeping a grievously disappointing pursuit. Let us begin with the former, which, of course, will partly meet dilemma No. 2.

Now, to prevent swarming in every case absolutely is impossible without so crippling a stock as practically to make it useless for profit. But we can in most cases so manage our hives as to reduce swarming to a minimum, and this is managed on the bar-frame principle with a facility and assurance of success not possible under the old system. First of all, bees usually will not swarm till their dwelling has become too straitened, and consequently too inconveniently crowded for their comfortable activity. It is true that they will swarm even in places where they have almost unlimited room, but in these cases it will generally be found on inspection that the arrangements of their dwelling, as in old buildings, hollow trees, &c., have not been convenient; hence they have swarmed, or else there has been some natural cause at work in the interior economy of the hive, as, for instance, when the bees have been obliged to raise a queen, or the loss (from age or other cause) of their late mother queen. Usually, however, say in nine cases out of ten, a judicious increase of space will effectually prevent swarming.

Meanwhile I would observe that it is certainly not good policy absolutely to prevent swarming. On the whole it is much more conducive to the general success of bee-keeping to allow opportunities for the natural (or it may be artificially contrived) increase of bees by swarming. I fully endorse what has been written in these pages on this subject by Mr. Pettigrew and others, and I am inclined to believe that it is advisable to allow every stock to swarm once (but once only) in every season. A well-managed apiary, therefore, should be so ordered as to allow of this, by keeping for winter a smaller number of stocks than the full complement of summer time. This can be easily managed in the autumn by a prudent reduction of the weaker hives by unions or otherwise. Allowance, too, will always be made for casualties. Few winters pass without the loss of one or more stocks in almost every apiary, while not a few are so reduced in population by the arrival of spring as to do little more than recover themselves afterwards. A few first-rate stocks allowed to swarm once will, in the long run, be more profitable than a much larger number managed wholly on the non-swarming system. Still, no doubt, when the number of hives is complete in any given spring, and a large quantity of honey is an object, we should be ready to prevent our bees swarming, and make the whole population devote themselves to honey-gathering.—B. & W.

VENOMOUS STINGS.

A POUltICE of common salt (chloride of sodium) applied as early as possible to the part stung and kept damp is an excellent remedy for the stings of bees, wasps, &c. A carriage horse of my father's was stung with a wasp in the eye, and my mother applied the above, which gave such relief to the poor animal that ever after he would come to her call, and, although a most difficult horse for others to catch, would allow her to bridle him with quite an affectionate submission. I have frequently experienced the healing qualities of this poultice, and have never known it to be

tried without giving the most marked and immediate alleviation. This very simple and efficacious remedy is nearly always at hand; and if any of your readers try it beneficially it would be well if they would let the public know.—C. BARNES, *Stationer, Lichfield.*

OUR LETTER BOX.

INCUBATOR (M. A. W.).—We cannot give you any relative information. We know of none in use.

FIRE LIGHTING (Anne).—We have not the book you mention, but the following extract answers your inquiry:—"In order to lay a fire so that it is quite sure to burn, first take eight or ten sticks of dry wood, some paper, a handful of cinders, and a few small knobby bits of coal. Clear the grate thoroughly from dust and ash, then put a thin layer of cinders at the bottom of it. Tear the paper into pieces about the size of a dinner plate, and squeeze each piece into a ball. Lay these balls on the cinders, and pile the wood lightly in crossbars on the top, being careful to leave plenty of room between them for the air to pass through. Now lay a few more cinders and the pieces of coal upon the wood, apply a match to the fire, and in a very short time it will burn merrily. If time is a consideration, the paper may be simply placed upon the cinders; but this method is not so certain to be successful as is that of tearing and squeezing up the paper. The reason of this is, that according to the latter plan the paper burns more slowly and longer, and so the wood has a better chance to ignite. The cinders should be placed first, because if they are not the shavings and sticks might drop through the bars as soon as they began to burn; and more than this, when the paper is lighted the cinders get hot, and their heat helps the larger sticks and the coal to catch fire. Cleverness in lighting a fire is shown by the number of sticks used for the purpose. There are capable housekeepers who boast that they can light a fire with four sticks. Extravagant servants sometimes use a whole bundle. The proper allowance used to be one bundle for three fires; but since wood has grown dearer the bundles have been made smaller, and now it is one bundle for two fires."—(Cassell's Domestic Dictionary).

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.						Rain.
	Baromet- er at 32° and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		In. sun.	On grass	
		Dry.	Wet.			Max.	Min.	In sun.	On grass			
1878. Feb. and March.	Inches.	deg.	deg.	S.	deg.	deg.	deg.	deg.	deg.	deg.	In.	
We. 27	29.935	46.0	43.9	S.	44.1	52.0	43.6	63.5	49.3	0.200		
Th. 28	29.900	49.5	47.5	W.	45.0	54.7	45.8	62.4	43.0	0.110		
Fri. 1	29.737	52.7	51.8	W.	45.0	57.3	49.2	64.3	44.3	0.116		
Sat. 2	29.900	51.2	48.8	N.	47.1	57.2	50.0	69.9	48.0	—		
Sun. 3	30.267	45.9	42.6	W.	46.6	56.0	37.1	97.5	32.1	—		
Mo. 4	30.645	47.3	44.8	W.	44.9	57.1	42.1	94.8	36.9	—		
Tu. 5	30.540	42.8	39.9	N.W.	45.7	53.8	41.3	95.9	35.0	—		
Means	30.139	47.9	45.6		45.7	55.7	44.3	82.5	40.1	0.286		

REMARKS.

27th.—Dark and thick in early morning; fair until 4 P.M., when rain commenced which lasted until 9 P.M.; brilliantly starlight at 11 P.M.

28th.—Fair but dull morning, rain in afternoon, windy evening.

1st.—Damp, warm, rainy, and rather windy all day. [evening.]

2nd.—Dry, warm, pleasant spring day with hot sun; partially cloudy in

3rd.—Bright fine day; hazy in evening, but very little cloud.

4th.—Dull morning, but bright sunny afternoon, very clear at night.

5th.—Cooler and more March-like, dust blowing in places, and altogether less genial.

Rather warmer than last week, and unduly so for the time of year.—G. J. SYMONS.

COVENT GARDEN MARKET.—MARCH 6.

BUSINESS is quiet with supplies short in the fruit market. Forced vegetables have a downward tendency; and outdoor produce, owing to the mild weather, is abundant, and is with difficulty cleared.

FRUIT.

	s.	d.	s. d.		s.	d.	s. d.
Apples.....	½	sieve	2 0 0	0	0	0	0
Apricots.....	dozen	0	0	0	0	0	0
Cherries.....	dozen	10	0	0	0	0	0
Currents.....	dozen	0	0	0	0	0	0
Black.....	½	sieve	0 0 0	0	0	0	0
Figs.....	dozen	0	0	0	0	0	0
Filberts.....	½	lb.	0 6 0	9	0	0	0
Cobs.....	½	lb.	0 6 0	9	0	0	0
Gooseberries.....	½	bushel	0 0 0	0	0	0	0
Grapes, hothouse.....	½	lb.	4 0 12	0	0	0	0
Lemons.....	½	100	6 0 10	9	0	0	0
Oranges.....	dozen	0	0	0	0	0	0
Peaches.....	dozen	0	0	0	0	0	0
Pears, kitchen.....	dozen	1	0	3	0	0	0
Pears, dessert.....	dozen	8	0	12	0	0	0
Pine Apples.....	½	lb.	1 6 5	0	0	0	0
Plums.....	½	sieve	0 0 0	0	0	0	0
Raspberries.....	½	lb.	0 0 0	0	0	0	0
Walnuts.....	bushel	5	0	0	0	0	0
ditto.....	½	100	0 0 0	0	0	0	0

VEGETABLES.

	s.	d.	s. d.		s.	d.	s. d.
Artichokes.....	dozen	2	0 10	0	0	0	0
Beans, Kidney forced.....	½	100	2 0 3	0	0	0	0
Beet, Red.....	dozen	1	6 3	0	0	0	0
Broccoli.....	dozen	1	6 3	0	0	0	0
Brussels Sprouts.....	½	sieve	2 0 0	0	0	0	0
Cabbage.....	dozen	1	2 0	0	0	0	0
Carrots.....	bunch	0	4 6	0	0	0	0
Capiciums.....	½	100	1 6 2	0	0	0	0
Cauliflowers.....	dozen	2	0 4	0	0	0	0
Celery.....	dozen	1	6 2	0	0	0	0
Coleworts.....	doz. bunches	2	0 4	0	0	0	0
Cucumbers.....	each	1	0 2	0	0	0	0
Endive.....	dozen	1	0 2	0	0	0	0
Fennel.....	bunch	0	3 0	0	0	0	0
Garlic.....	½	lb.	0 6 0	0	0	0	0
Herbs.....	bunch	0	2 0	0	0	0	0
Lettuce.....	dozen	1	0 2	0	0	0	0
Leeks.....	bunch	0	2 0	0	0	0	0
Mushrooms.....	pottle	1	6 2	0	0	0	0
Mustard & Cress.....	punnet	0	2 0	0	0	0	0
Onions.....	bushel	2	0 0	0	0	0	0
Pickling.....	quart	0	4 0	0	0	0	0
Parley.....	doz. bunches	3	0 0	0	0	0	0
Parsnips.....	dozen	0	0 0	0	0	0	0
Potatoes, frame.....	½	lb.	0 6 2	0	0	0	0
Potatoes.....	bushel	3	6 7	0	0	0	0
Kidney.....	bushel	5	0 7	0	0	0	0
Radishes.....	doz. bunches	1	0 1	0	0	0	0
Rhubarb.....	bushel	1	0 0	0	0	0	0
Salsify.....	bushel	0	6 0	0	0	0	0
Scorzonera.....	bushel	1	0 0	0	0	0	0
Seakale.....	basket	0	9 2	0	0	0	0
Shallots.....	½	lb.	0 3 0	0	0	0	0
Spinach.....	bushel	2	6 4	0	0	0	0
Turnips.....	bunch	0	3 0	0	0	0	0
Veg. Marrows.....	each	0	0 6	0	0	0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	MARCH 14—20, 1878.	Average Temperature near London.			Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.		Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h.	m.	h.	m.	h.	m.	h.	m.	Days.	m.			s.
14	TH	Royal Society at 8.30 P.M.	51.7	34.3	43.0	6	18	6	0	after.	4	16	10	9	22	73	
15	F	Royal Institution at 8 P.M.	51.1	32.7	41.9	6	16	6	2	1	31	4	45	11	9	5	74
16	S		50.7	34.6	42.3	6	14	6	4	3	2	5	8	12	8	47	75
17	SUN	3 SUNDAY IN LENT.	50.8	33.7	42.6	6	12	6	5	4	34	5	26	13	8	30	76
18	M	London Institution at 5 P.M.	48.5	32.2	42.3	6	9	6	7	6	5	5	41	14	8	12	77
19	TU	Royal Horticultural Society—Fruit and Floral Com-	51.1	32.9	40.5	6	7	6	9	7	36	5	56	15	7	54	78
20	W	Society of Arts at 8 P.M. [mittees at 11 A.M.	52.1	32.4	42.3	6	6	6	10	9	9	6	11	16	7	36	79

From observations taken near London during forty-three years, the average day temperature of the week is 58.0°; and its night temperature 33.4°.

From observations taken near London during forty-three years, the average day temperature of the week is 53.0°; and its night temperature 33.4°.

HINTS ON LANDSCAPE GARDENING.—No. 1.

THE term landscape gardening if taken in its most comprehensive sense embraces everything that is done to embellish the surroundings of our homes, and while it is usually understood to apply to the laying-out of extensive pleasure grounds, yet the making of the smallest garden undoubtedly comes within its scope; and it is my purpose in this and following communications to consider the treatment of certain portions of gardens large and small, to draw attention to faults that are common, and to suggest such remedies as appear best adapted to each case.

I wonder who makes the gardens and plants the front courts of suburban villas? Is it the local nurseryman who professes to do landscape gardening and groundwork? or must we attribute the surprising, often startling, effects to the humble efforts of the jobbing gardener? However this may be, it is an undoubted fact that the result is not often satisfactory, and yet there is really no reason why even a small court may not be made ornamental. The reason why failures are the rule rather than the exception is because each garden is not treated according to its peculiar requirements; the style being usually too ambitious, florid ornamentation prevailing where only simplicity should be found; a multitude of plants occupying the space suitable for only two or three; trees filling the place of shrubs, and shrubs occupying the places of plants; a superabundance of vases; an elaborate geometrical design, affording just so many unmeaning patches of colour where either a single plain circle or no beds at all would be better.

How to suggest or apply a remedy for such defects is the difficulty, the treatment of most small gardens being more often a matter of fancy than of taste, to which the good folks who own them very likely lay no claim and are content to obtain amusement in their own fashion; and if they do find pleasure in the contemplation of a startling combination of scarlet and yellow, a row of huge *tazzas* reared aloft on pedestals, or a miniature Mont Blanc in the centre of their lawn, why should we try to mar their enjoyment of what they consider to be the very embodiment of perfection by vain hints of refinement, tone, repose? Rather should we strive to assist those whose efforts show that they have ideas of taste—one striving to improve, and will therefore welcome our counsel and turn it to account. The force of example is well known—establish one well-arranged garden, and depend upon it there will be a gradual improvement in all other gardens in its vicinity, and therefore we may reasonably hope by our teaching to improve many gardens indirectly.

Let us first turn our attention to the courts which we see in front of suburban houses, and what do we find? Sometimes a row of Planes, Limes, Sycamores or Poplars along the front, pollarded and presenting such a formal scrubby appearance that one wonders how anyone can be content to retain them in front of their windows. No doubt anything like a tree is grateful to the sight, and when such a leafy

screen is attempted—leafy, by-the-by, only in summer—I would suggest Mountain Ash, Snowy Mespilus, or Sumach as being from their moderate growth and ornamental appearance desirable substitutes for trees of loftier growth which must be hacked into pollards to keep them within bounds, and I know that all three of them answer in the soot-laden atmosphere of a London suburb.

Worse even than the pollards is a tree towering aloft near the windows, darkening the rooms, overpowering everything near them, and appearing altogether out of place. Not long ago I saw a *Cupressus macrocarpa* upwards of 30 feet high in such a position, and was amused at the owner's dilemma. What should he do? sacrifice the tree of which he was so proud for the sake of light and air, or live in perpetual gloom? Great as is the mistake in planting lofty-growing Conifers in such unsuitable positions one cannot feel surprised at it, for many of them are so elegant in their young state as to induce forgetfulness of the future. There are a few comparatively dwarf kinds making handsome specimens, and which are not likely to become too large. *Arthrotaxis selaginoides*, *Saxe-Gothæa conspicua*, *Thuopsis dolabrata*, *Thuja aurea*, *Sciadopytys verticillata*, *Retinospora leptoclada*, *R. ericoides*, and others. But I do not recommend Conifers for the suburbs of large towns, for they never answer well in the smoke, and can hardly be termed ornamental when stunted in growth and begrimed with soot.

Why is it that Holly is not more frequently used for roadside screens? The pollards to which I have alluded are of course planted to afford a certain degree of privacy, which they do very imperfectly. Now the Holly makes an impenetrable evergreen screen, not at all heavy-looking, but always ornamental; nor need it be at all formal-looking if a wavy serpentine outline is given to the inner side facing the house with either an inner row of *Rhododendrons*, or, better still, two or three semicircular clumps of *Rhododendrons* springing out from the Holly. Of other shrubs which answer well in smoky districts I can recommend *Ligustrum japonicum*, the Japanese Privet, with large handsome foliage and bold spikes of white flowers. I should think the *Escalonia* having such stout foliage and being so robust would also answer well, but I have not seen them tried. *Garrya elliptica* makes fine specimens in the London suburbs, and is precisely the sort of shrub for a small garden, as also is *Cotoneaster Simondsii*.

With regard to the internal arrangements of a front court, who shall venture to decide but the owner thereof? I at any rate hope to do most good by confining myself to general hints; and to my readers who like alpine or rock plants I will say, Do not pile up a heap of rocks upon your little lawn in front of your windows, but make one, two, or three low rock beds in the nooks by the Holly hedge and there plant your charming little miniatures, which are so beautiful that one cannot wonder at your liking for them. By rock beds I mean beds of soil with pieces of rock thrust in among the soil and so disposed as to form numerous cosy little nooks and corners. It was only a few days ago that, happening to be in the neighbourhood of Blackheath, I saw precisely the sort of rocky pile to which I object.

It was piled up out on the centre of a little lawn more in the form of a pillar than a mound, rock plants planted upon it, and with a Pampas Grass a-top of all. The remedy was as obvious as the fault. The rocks and plants should be arranged in a low bed in any corner or less conspicuous position, and the Pampas Grass put upon the turf in place of the rocks. Avoid many vases. If you have steps a vase upon a pedestal on each side of the bottom step, and perhaps another pair of vases in a similar position at the top step, may look well, but do not use more vases at the foot of or near the pedestals.

If you have walls plant Honeysuckles; there is one called *Lonicera flexuosa* that is very sweet and grows fast. It may also be trained up the stems and branches of trees. You should also have white and yellow Jasmines upon your wall, a purple Clematis (*C. Jackmani*) to give summer flowers, with the white-flowered Clematis montana for spring, and the French Clematis Flammula with its sweet-scented pale yellow flowers for autumn. Then if you can contrive a flower bed or border do not fill it with scarlet Geraniums, but have a few Snowdrops, Crocuses, and Tulips for spring, and for summer sow some Mignonette, Sweet Peas, and Stocks, with a few Asters and Zinnias, and more Mignonette for autumn. If you have a little bed or patch of border near your sitting-room window sow it with the Night-scented Stock (*Mathiola bicornis*), and in summer evenings you will have a delicate but delicious perfume stealing into your room. Do not indulge in extremes, making your little garden a shrubby wilderness—the term is perfectly applicable to many a front court—nor cut it up into a maze of flower beds; a few shrubs and flowers such as I have indicated well tended and especially well watered will afford you much more pleasure than a crowd of plants, which, however choice they may be, have no chance of growing either into beauty or health.—EDWARD LUCKHURST.

JUDGING ROSES.

[Read on March 5th, 1878, before the General Committee of the National Rose Society.]

1. *What is a Good Rose?*—A first-class Rose must have form, colour, and size. I believe that the majority would arrange these points in the above order. For my part I think that all three are indispensable. If a Rose has ugly shape, faded colour, or inferior size, it is not up to the mark, and must be reckoned a bad bloom. As to form, I am content with Canon Hole's definition, "Petals abundant and of good substance, regularly and gracefully disposed within a circular symmetrical outline" (p. 207, ed. 2). As to colour, I mean the deepest and most brilliant tint which is known by the practised eye to be reached by each variety. I am a strong advocate for colour, and would at once eliminate a dirty or faded bloom, even though it possessed form and size. As to size, the average size in a box of show blooms should be large, but I think that the capabilities of each separate variety should be fairly taken into consideration. No account whatever should, in my opinion, be taken of the soil where the Roses are grown or the distance which they have travelled.

2. *Staging.*—A superior style of staging shows off a bloom to the best advantage, and thus influences the eye of the judge. But, as a matter of fact, almost every exhibitor of any pretensions does in these days of close competition stage well. Should two collections be deemed exactly equal, I would leave it to the discretion of the judges to decide whether the difference in the style of staging be sufficient to justify them in separating the collections.

3. *Points to be given to Teas.*—This is, I think, an open and difficult question, on which good judges differ. On the whole I think that Teas can afford to stand on their merits, no extra allowance being made for the fact of their being Teas. Good Teas are splendid flowers, and will hold their own against the Hybrid Perpetuals. In size they do not average as large as the Hybrid Perpetuals; but in delicacy of colour they are superior, and they are decidedly better travellers.

4. *Selection and Number of Judges.*—With all deference I submit that no one should act as judge who is not a successful exhibitor at first-class shows or has quite lately been so. I think, too, that he should have been successful in the larger classes. To one who is so I leave the judgment of my blooms with quiet confidence, but anyone who is not I thoroughly mistrust. I have never suffered from bad judging at a London show, but twice last year at country shows I was beaten, not by the competitors, but by the judge. I made no complaint, but I do think that secretaries of country shows should take

more pains beforehand to secure judges in whom confidence will be felt. It is quite common to find local men of no status in the Rose world acting as judges at country shows, really competent growers being present and not asked to do so. As to number of judges I would have three if possible, if not, one. Two is a bad number, for if they differ the reference to some third person not being a responsible judge is very unsatisfactory.

5. *Method of Judging.*—I agree in the main with the usual system mentioned by Mr. Camm in the *Journal of Horticulture* for Feb. 7th:—viz., Given three judges and the collections which have no chance being eliminated, each judge takes it in turn to count, the other two judges stand behind him and stop him when they do not agree. If there is a difference of opinion the majority at once decides. There is no delay. Good blooms have to be counted, and bad blooms have to be counted. I should like to count in the following way:—Give one point for each good bloom, take off one for each bad bloom; do not count the average blooms at all. In addition, a very good bloom should have two, and one of those exceptionally magnificent blooms (of which there are perhaps two in the whole show) should have three marks. Two marks might be taken off for a very bad bloom; in prize boxes they hardly ever occur. Competent judges can go over boxes at a good pace by this plan, and there is nothing complicated. Boxes found to be equal in number of points should of course be placed side by side for accurate comparison, when the average size, form, or colour will probably be seen to differ sufficiently to separate them. If not, they must be placed equal. I think it would be a good plan to mark on the prize card the number of points given. Those who stand second or third in a class would then know by how much they were beaten, and it would be gratifying to those who were in the running, though not placed, to have their points written upon their exhibition cards. The time taken would be very short. Another advantage of marking the points is that it would show the opinion of the judges of the actual merit of the collection, independently of that particular show.

6. *Time of Judging.*—Let the judging begin at the time advertised. It is very unfair on those who have come long journeys to have their blooms kept waiting, as they not unfrequently are, until from one to two hours after the time advertised for the judging to commence.—T. H. GOULD, *Mortimer, Berks.*

I AGREE in the main with much that has been written by the Rev. Canon Hole, but object to the idea that size is the last consideration. Now I maintain that for a stand to have a chance it is absolutely necessary for the flowers to be large, but not coarse; form also must accompany them. I therefore put it that those two points are of equal consequence. I should then look for freshness and brightness. Flowers a day too old have more size, but have a *passed* appearance, and always ought to have a bad mark on that account. Variety in a collection I think of the highest importance, and for this reason I regard Teas and Noisettes in especial favour, as they brighten and relieve a stand very much, but I should never put one in because it is a Tea unless it were a good one. Evenness in size all through will commend itself, and so ought good foliage. The arrangement and setting-up always speak for themselves.—BENJAMIN R. CANT.

My friend Mr. Peach entirely mistakes my meaning when in his last interesting article he mentions that he disagrees with me when I think that "the names of judges should be published, under the idea that exhibitors should try to please the taste or fancy of the leading spirit among the judges." Now, I thoroughly deprecate entertaining this idea, and on a second glance it will clearly be seen, I think, that my words do not bear out that supposition. On the whole I am against open judging. Granting that the Rose judges, *par excellence*, are few, and leading exhibitors usually betray themselves by their writing or setting-up of the blooms, still Roses, I hold, will as a rule be more generally decided on their own merits (the great desideratum) by the present fashion of close judging, while to expect judges to be entirely free from involuntary bias would be to expect human nature to be perfect. I find myself to be in an absolute minority in objecting to the National Rose Society issuing a code of rules for the direction of Rose judges, still I am quite open to conviction. This much I already concede, that plain carefully drawn rules emanating from a central authority must be of the greatest benefit to judges, and indeed all managers of country shows; but my

'friend' Mr. Baker is oversanguine if he expects any written regulations to clear out, as with an enchanter's wand, that Pandemonium into which a Rose exhibition is converted for an indefinite chaotic period before being cleared for the judges to begin their rounds. Mr. Newman will, I am sure, add the weight of his experience to mine that despatch at that critical period entirely depends on the official in command.

I should like to endorse what I think has already been alluded to, I mean the harmony of apparently conflicting ideas among correspondents. Travelling over different roads at greater or less angles we seem in our own method to arrive at the same point. The idea of "H. C.," for instance, about counting by point cards I feel sure will do infinite good at more than one country show this year. To the tyro and unpractised in music what master would fail to counsel the most diligent use of counting as a regular habit? and even as the thorough artist feels himself obliged occasionally to have recourse to the practice to steady himself, so an efficient Rose judge may well avail himself of this orthodox method in an exceptional emergency, though tedious and useless as a rule. Again, as regards the disputed pre-eminence of the different qualities in a Rose, I hold size to be the main point, though here we have the same standard of excellence in view, because with this qualification all others in a perfect bloom (which of course is meant) are included, whereas you may have shape, freshness, form, &c., *ad infinitum*, without size.

The question of size goes far to settle the debated point of the admissibility of Teas into which "M. N. R. S." calls the mixed system of Roses, also as to whether Teas are to be handicapped favourably. I am sorry I cannot agree on this latter point with my friend "WYLD SAVAGE," much as I should like to do so. Teas I hold, however, if of sufficient size, like good wine need no bush. Their delicate, slender, maidenly figures must ever stand out in charming contrast with the more matured matronly embonpoint of the H.P.'s, not to forget the exquisitely blended tints of white and pink which light up so effectively the dull surface of the reds and darks, especially at early shows, in the exhibition box. Mr. Cant (who I wish would give us his views), I feel sure, will fully endorse my views, seeing he would go the length of giving extra marks for well-grouped exhibits.

In addition to the prize of £3 3s. for eighteen triplets of Teas and Noisettes offered for competition by the Editors of our Rose Journal at the next National Rose Show, I am happy to state Mr. John Arkwright of Hampton Court, the winner of all the Maréchal Niel prizes last year, has kindly given a cup and £5 for an amalgamated box of twelve Teas and Noisettes and twelve H.P.'s, to be competed for at the West of England Rose Show at Hereford next July 3. I venture to predict that the result of the competition for these prizes will go far to show that the lovely Tea Roses can hold their own either by themselves or in any company, and that on their own merits without favouritism.—THE HEREFORDSHIRE INCUMBENT.

I PLACE the points as follows:—1st, Form and symmetry; 2nd, Colour, freshness; 3rd, Size; 4th, Substance of petal; 5th, Foliage. I do not consider that a Tea Rose ought to carry an extra point, as some of our most beautiful hybrids are equally as difficult to show; for instance, Marquise de Mortemart, Lord Macaulay, &c. A box of Roses ought always to be as near uniform in size as possible; therefore evenness of arrangement and variety of colour are great desiderata.—A. SARGANT, *Reigate*.

KEEPING GRAPES.

WITH respect to the question whether Grapes grown entirely in inside borders keep any better than those having a run of outside borders, allow me to say that the only Grapes keeping well in all respects here this season are some Muscat of Alexandria bunches, which were part of the produce of Vines with roots entirely inside. The same Muscat, Royal Vineyard, Raisin de Calabre, Gros Guillaume, Mrs. Pince, and Lady Downe's from vineries with outside borders are one and all affected with a disease of the stalks and entire framework of the bunches, which is new to me. These have shrivelled in an extraordinary manner, whilst the berries have remained quite juicy though slightly shrivelled. The last of the Black Hamburgs went in exactly the same manner. I attribute this to the saturated state of the outside borders and their consequent coldness, aggravated by the rather high temperatures necessary

to have the Grapes ripe before winter. Two years ago I kept Muscat of Alexandria and Black Hamburgs from the first-mentioned house until March, these having been ripened in the earliest part of August. In very many localities where heavy rainfalls are the normal condition, and more especially where the natural drainage is bad, I would be inclined to vote for inside borders for late Grapes in preference to those partly inside and partly out. I may further say, in my last situation, with a particularly dry soil, I kept Lady Downe's and Mrs. Pince hanging in excellent condition on the Vines till the buds "broke." The border was wholly inside, and the Vines started into growth in April.—R. P. B.

NOTES FROM MY GARDEN IN 1877.—No. 2.

GLADIOLUS.

I HAVE now for many years, probably as long as any amateur in England, grown this beautiful autumn flower. I can look back and trace the marvellous improvement that has taken place in it; can remember when various contrivances were adopted to present spikes with a good face owing to their habit of being winged, and when half a dozen blooms on a truss were considered quite an achievement, and now see how different they are: but I may at the same time say that I have never (save once when nearly my whole collection was swept away) had so calamitous a season as the past one. I know there are some who say, "You ought not to mention these things; you will discourage the growth of the Gladiolus and spoil business." I should be sorry to do so, but after all truth must be spoken; and with respect to the Gladiolus, the truth is that of all the disappointments which a lover of flowers has to endure, there are none to exceed those of the amateur who grows this flower.

I said I can look back on many years of culture, but let me say my culture never exceeds a few hundreds of plants; and during those years I have seen amateurs, aye, and nurserymen too, one after the other, taking up the culture of the Gladiolus and dropping it owing to their losses; others say that named varieties are so precarious that they will henceforth confine themselves to seedlings, but these seedlings only preserve their character for a year or two and then fail. Various opinions have been given how to remedy these losses as to time and manner of planting, as to the character of the soil and the harvesting of the roots, but the conclusion of the whole matter is unsatisfactory.

As to my experience of last year, let me say that my collection came from various sources. I received from France the new varieties of the autumn of 1876 besides some other forms of preceding years, some new and some as old as Meyerbeer and Madame Furtado. I had also a few from my friend Mr. Banks's garden at Shobden, some of English-raised seedlings which had been let out at a high price, about half a dozen from my friend Mr. Galloway, and of course my own stock saved and harvested in good condition. I planted two large beds besides a smaller one, and a bed of seedlings and mixtures. These beds were of the ordinary garden soil and had been manured in the autumn. The ground was in capital heart when I planted them. Some, according to Mr. Galloway's advice, were planted 6 inches deep, others 4 and 5. Some of the larger bulbs were cut in two, the remainder planted whole; but wherever or however planted the result was the same—many never came up, and of those which came up and bloomed a great many died, so that I did not at the end of the season take up one-half of those I planted. I cannot believe it was any fault of cultivation, for some of the spikes were the finest I ever had; and it was not the fault of any one particular strain, as I obtained them, as will be seen, from various quarters.

And now what is the reason of this failure? A very distinguished grower who grows them by the acre laughs to scorn my statement that it is disease. I never meet him but he gives me a friendly thrust and says, "You ought to be ashamed of yourself of talking of disease: it is nothing but exhaustion. I am a practical man, have been amongst them for thirty years, and think I ought to know." Imagine the employer of a thousand men, who is told by a physician that there is an outbreak of fever amongst his men, that he has been from house to house and finds them low and fading away, and that the disease is gaining ground; and that to him the employer says, "Fear, fiddlesticks! Nothing but exhaustion. Sir, do you think I don't know? I have employed thousands of men, and think I ought to know something about them. I am a practical man, sir, and I say it is not fever but weakness."

The physician would probably smile, if he did not turn angry, at what he would call the ignorance of his friend. Now we have the statement on one side of practical men, who look only at things as they present themselves outwardly to them, who affirm that there is no disease; and on the other the statements of such men as Berkeley and Worthington Smith, who, having subjected the corms to microscopic examination, affirm that it is disease and that it is analogous to diseases affecting other bulbs, but who are powerless to suggest a remedy for it as our best physicians are for some of the diseases which affect the human frame. I would rather follow the investigator than the practical man who only looks at the surface of things.

With regard to the new varieties of last year, there were as usual about a dozen of Mons. Soubet's and some eighteen of Mr. Kelway's. Of the latter I can say nothing, as I have not seen them; and with regard to the French varieties I can only give the following notes, as a few did not bloom. I think the two best were *Carnation* and *Panorama*. *Carnation* had a very long spike, some fourteen flowers being out at the same time; the colour was French white, with the edges of the petals flamed and striped with deep carmine, with dark purple spots in the centre of the petals. *Panorama* is a lilac flower with bright carmine markings, centre white: a new shade of colour very difficult to describe. *Diamond*, which came out at a very high price, disappointed me much, and I do not think that there was anything very remarkable in the other flowers; but then, as I have said, the season was so bad that some never came up and others did not bloom.—D., *Deal*.

PREPARING STOCKS OF BEDDING PLANTS.

THE propagation of tender bedding plants will now be proceeding apace in all gardens where large quantities are required. To many whose appliances for propagating are far from being first-rate, the providing of a sufficient stock of good plants by the time the weather is sufficiently warm for filling the flower beds is very often a serious business. The most common source of annoyance seems to be a shabby stock of stove plants to commence with. During the winter the plants get into a dwindling state, and much time is lost in bringing them into a healthy growing condition. All autumn-struck stove plants ought to be planted thinly in the boxes they are to be wintered in, using a holding soil, and allowing them a temperature sufficiently warm and no warmer than just to make a stubby growth. Plants thus treated supply a stock of cuttings early in the season without any forcing to have them ready. We had from eight hundred to a thousand each of varieties of *Lobelia*, *Verbena*, *Ageratum*, *Iresine*, and *Königa*, as a first batch of cuttings this season. These are again at a stage to multiply themselves (without cuttings from the store plants) at the rate of one and a half cuttings to each.

I do not like a high temperature for these at this season, consequently as they become rooted they are draughted into houses having a temperature of about 50° as the minimum. When sufficiently strong the rooted cuttings of *Königa variegata* are planted in cold pits. In April matters are very much simplified in producing plants in any quantity. Cucumber and Melon frames, and also pits heated by means of fermenting material, have the surfaces entirely covered with soil and dibbled full of cuttings of all sorts of bedding plants, which readily strike in that manner. When well rooted they are boxed-off and transferred to vineries which in that month have all a quick-growing temperature.

Plants raised from seed are mostly provided with little trouble, as, for instance, *Perilla* is sown in boxes, and when the seedlings appear they are transferred to cooler quarters, in due time to be planted out in cold pits with *Königa*, *Verbenas*, &c. Stocks, *Asters*, *Tagetes*, *Phlox Drummondii*, and such-like are sown in cold pits in April thin enough to allow the plants to be left till required for planting-out.

It is of great importance to keep all plants intended for bedding-out in a growing state from the time they are rooted till they are planted in the beds. The above-mentioned conditions secure this so far, but in addition it is found to be very necessary to cultivate the plants highly. Thus the whole of the store pans are surfaced with Standen's manure early in the year, and are also kept watered with manure water. This tends to the production of strong cuttings. Then, instead of striking the cuttings in sand and water they are dibbled into a sound growth-producing compost, and when transplanted into other boxes or planted-out in pits a compost of as good

loam as can be had with a liberal addition of Mushroom dung added is used. In due time these are also treated to manure water, the growths are pinched when necessary, and in the end the results justify the means.

April-struck plants of *Ageratums*, *Verbenas*, and others of a like nature are as a rule as good or even better plants by bedding-out time as are those struck earlier in the year. It is necessary to plant *Lobelias*, *Ageratums*, *Verbenas*, *Violas*, and *Iresines* in very highly manured soil, also after planting a mulching of Mushroom-bed dung is of great value in causing these and kindred plants to grow and flower satisfactorily throughout the season.—R. P. BROTHERSTON, *Tynningham*.

THE ROYAL BOTANIC GARDENS, KEW.

SINCE the publication of our remarks on the opening of the Royal Botanic Garden at Kew to the general public as a recreation ground during the whole of every day we have had many communications, all agreeing with what we said on the subject. We publish to-day a letter received from "A COUNTRY GARDENER," which places the matter in its true light, and the same opinion has been expressed by others who are not residents in the country, but being students of science complain that they are restricted in the use of the garden for scientific purposes by non-admission before one o'clock.

There is much truth in the representations of both classes of correspondents, and we have often thought that some arrangement might be made by which properly qualified persons could have the use of the garden at all reasonable times for the legitimate purposes of their profession. We have ourselves often found it hard when we required to visit the Botanic Garden, either for the purposes of investigation or to show them to a foreign visitor, that we were obliged to contrive some way of occupying the early part of the day till admission could be gained to Kew at one o'clock; and especially in the short days the inconvenience was aggravated, for before one gained admission at one o'clock there was not time to do what was to be done before the gates closed. Speaking personally we have always found the greatest courtesy from the authorities, and every facility has been afforded when application has been made in special cases; but some people have a delicacy in making these applications, and infringing on what are supposed to be the rules of the establishment. We had long thought that some such rule as obtains in the case of the reading-room of the British Museum would work well, which is that botanists, students of science, professional gardeners, and others wishing to make a legitimate use of the gardens might be furnished with tickets, available and renewable for six months, to be issued by the Director upon application, certified by two householders that the applicant is a properly qualified person to receive the privilege.

Upon inquiry we find that there is some such arrangement as we have indicated, but it does not appear to be generally known, and consequently many who might obtain the privileges they so much desire are deprived of them through ignorance of their existence. We believe there is some such work as a Guide to Kew Gardens. If the privileges of scientific students and others were there stated, or if publicity were given to them in the horticultural and other scientific papers, the complaints that have been so long made would at once be obviated. Whatever is done we hope will be in the interests of science and of legitimate inquiry, and not to satisfy a popular clamour for what is neither requisite nor necessary, and what has nothing whatever to do with the Botanic Garden as a scientific institution, founded with the special object of advancing a special science.

It appears from your Journal (see page 167) that a local agitation is in progress for the purpose of having the above gardens opened to the public at ten in the morning instead of at one o'clock at noon. I am not surprised that you have spoken plainly against a change that would simply render the gardens a public recreation ground of the same nature as the parks attached to London and to other cities and towns. If the proposed change were granted where is the assurance that in time the "right of public meeting" would not be demanded? which would certainly be turning the gardens to a use for which they were never intended. While I consider it quite right that you should endeavour to sustain the integrity of Kew as a botanic garden, I still think that some change of the time of opening the garden to certain people and under certain circumstances is very desirable. Kew is regarded by

the gardeners of Britain as a great educational establishment, but to country gardeners residing long distances from the metropolis it is practically a closed book, because they have simply not time to visit the gardens and examine and investigate in any satisfactory manner without losing their night trains home. That, I submit, is not a sentimental but a real grievance. There is no place that I have visited with greater pleasure and greater pain than Kew—pleasure because of the means it affords of imparting valuable information, pain because due and sufficient time is not allowed for carrying out the object of a visit.

Like many other gardeners I have occasionally the privilege of spending a "day in London," and only a day. Kew is one of the places that I especially desire to visit, and I should feel it a great privilege if I could have entrance to the grounds and houses, solely with an educational object, at an earlier hour than one o'clock. I have more than once hung about Kew Green waiting for the opening of the gates, and have thus wasted valuable time, simply because it could not be utilised sufficiently near for me to have entered the gardens at the moment the gates were opened.

Kew is, I apprehend, a national establishment supported for a special object. With that object I as a gardener am particularly interested and specially identified, yet I cannot under the present rules derive any practical advantage which is supposed to be at my disposal by a visit to the gardens. When I visit Kew it is in the performance of a duty, which is very different to a jaunting pleasure excursion, and I submit that the means should be afforded me for the discharge of that duty. I do not think, therefore, that I suggest what is unreasonable nor anything that is contrary to the legitimate object of the establishment when I ask that the consideration of the authorities be given to the subject of admitting duly accredited and *bonâ fide* gardeners at an earlier hour than one o'clock. The numbers would be comparatively so few that no real inconvenience could arise from their presence to the working of the establishment, while the facilities thus accorded to those few would be really great and important advantages.

If the authorities should consider to grant such a privilege as is suggested it would of course be necessary to guard against its abuse. A ticket or certificate from any established London or provincial nurseryman might be recognised as sufficient vouchers to admit the bearer to the gardens. If these were to be granted only to *bonâ fide* gardeners or to such others as the authorities might determine there would be no danger of the system being abused. A gardener would only write to those who knew him personally or by business transactions for the requisite voucher, and thus there would be small chance for a visitor gaining admission by false pretences. I think if the privilege suggested were granted only very few would avail themselves of it, but the granting of it would nevertheless be warmly appreciated by the entire body of gardeners in Britain.—A COUNTRY GARDENER.

PARAFFIN STOVE VERSUS FLUES.

In answer to an inquiry on page 92 of the Journal, my experience, though very limited, yet being a very successful one, may be of use.

Having one of Rippingille's patent stoves with radiator (to burn paraffin), I had a stand made over it with zinc drawer for hot water, a bed of sand kept damp to put cuttings in or lay small pots on, a glazed lid which opens like the lid of a box, for the purpose of saving room. This propagating bed is placed in the sheltered end of a glazed pit. With the stove turned down at its lowest I have a temperature of 70°. I have had it at work since November striking Fuchsias and other things, and the seeds now sown in it are doing splendidly. By keeping a canvas cloth hooked round it or let down I can raise or lower the temperature of the house or the frame at pleasure.

I may say that I have lately tried a much simpler and less expensive arrangement of hotbed, in which a temperature of 65° to 75° is maintained, and in which I have started a number of tuberous Begonias most successfully. It consists in a box about 2 feet 6 inches square, with a bottom board of half-inch deal, on the outside of which is nailed zinc to prevent the wood burning. About 3 or 4 inches of sand kept very moist answers, I find, quite as well as the hot-water drawer; and there being only the thin board covered with zinc between the heat and the sand, it can be kept sufficiently warm by two very small paraffin lamps of that kind that have a bit of sponge in

them and are used without chimneys. A glazed lid or hand-glass can be used for cover. These two little beds are such a pleasure to myself, and one so easily made and managed, that perhaps the idea might help "E. H." or other amateurs who, like myself, love to see their flowers growing.—A. C.

THE MULTIPLYING OR TREE ONION.

I WAS very pleased with "A KITCHEN GARDENER'S" account of the cultivation of the Onion, and if all its growers follow his directions they may expect a good crop; but with his remarks about the Tree Onion I do not agree. I have been growing the Multiplying or Tree Onion for some years, and find it very useful and cultivated with much less trouble than the common Onion: it is also much harder. It requires the ground to be slightly manured. Then in February or March plant the bulbs in rows 8 inches apart and 8 inches apart in the rows. They require no further culture except to be kept well weeded.

They are very productive, one small bulb will grow into a good-sized Onion (and sometimes three or four like the Potato Onion); from that one is produced a stem about a foot high or more, and then a bunch of four or five more Onions about the size of nuts, the proper size for pickling, and then another stem and a bunch having still smaller bulbs for another year's planting.—J. BRACEBRIDGE, *Kilsby*.

SCOTTISH HORTICULTURAL ASSOCIATION.

THE annual general meeting of this Association was held at 5, St. Andrew Square, on the 5th inst., Mr. Dunn, Dalkeith Gardens, in the chair. There was a large attendance of members. Mr. John Methven, the Secretary, read the first annual report, which showed that since the institution of the Society on the 20th March, 1877, twelve meetings had been held, with an attendance of between eighty and a hundred at each. The number at present on the roll of the Association was stated to be 241. The Treasurer's report, submitted by Mr. Laird, showed that the total income had been £25 5s., the expenditure £14 18s. 11d., and the balance in hand at the disposal of the Society, £10 6s. 1d. It was stated that at the meeting of Council held on the 19th of February it was unanimously agreed to recommend the re-election of the office-bearers. The constitution and bye-laws of the Association were then submitted *seriatim*, and after some discussion approved of. The Chairman proposed that Sir William Gibson-Craig, Bart., of Riccarton, should be elected Hon. President for the ensuing year. It was agreed to increase the number of the Council from twelve to fifteen members, and the following were elected to fill the additions—Messrs. John Downie, James Grieve, and George McClure. It was announced that the first prize for a flower garden plan had been gained by Mr. William K. McLeod, Dalkeith Gardens; the second by William Martin, Linton Park; third by Wm. Garrett, Linton Park; fourth by Geo. McKinlay, Dalkeith Gardens. Sixteen plans were sent in for competition, all of them being of considerable merit. The Judges were Messrs. Webster, Gordon Castle; Thomson, Drumlanrig; McNab, Botanic Gardens; and Gorrie, Trinity. It was also intimated that Mr. Downie had again placed £5 at the disposal of the Association, to be applied as they thought proper.

A communication from the Royal Caledonian Horticultural Society was read in regard to adjudicating committees on new plants, fruits, flowers, and vegetables, which was remitted to the Council for the purpose of being carried into effect.

Messrs. Downie & Laird, Royal Coates Winter Gardens, exhibited to the Society a truss of a new seedling Himalayan Rhododendron. It has been named Princess Louise, and from its splendid colour and magnificent habit is expected to prove a great acquisition. The leaves are of a dark glossy green colour, and in form lanceolate ovate; the flower truss is dome-shaped, the pipe cup-shaped, of immense size and leathery texture; the colour cherry rose of a brilliant hue; the stamens black, and the anthers white, producing a novel effect. The flowers last for a great length of time owing to their great substance. The plant from which the truss was taken has over fifty flower heads fully expanded, and presents a noble appearance. Mr. Foreman, nurseryman, Dalkeith, exhibited a new seedling Skimmia; Mr. L. Dow, Langton Hall Gardens, showed the sweet-scented Iris persica in great beauty. It was intimated that Mr. McAdam, son of Dr. McAdam, would read a paper at the next meeting on the "Food of Plants." The meeting terminated with a vote of thanks to the Chairman.

PROTECTING FRUIT BLOSSOM.

EVERY year's experience proves that full crops of fruit cannot be secured on Peach, Nectarine, Apricot, and other trees trained on walls without shelter is afforded to the blos-

soms during the inclement weather of spring. Copings of various kinds, such as of glass, wood, and stone of various widths, are undoubtedly of considerable service, and in ordinarily mild seasons are generally sufficient to insure fair crops of fruit; but in such springs as those of last year something more is required to render the blossoms and embryo fruit safe. In addition to the copings protection is necessary to protect the blossoms from the cutting "ice winds," sleet, rain, and snow, which are too often prevalent during the blossoming period. For this purpose blinds of netting, tiffany, canvas, and frigi domo are employed; but those who have had recourse to those materials, while admitting their value, know that they possess certain disadvantages. Blinds that are sufficient to exclude frost for the same reason necessarily exclude light and a free circulation of air, which are essential to strong blossom and a good set of fruit; while materials that are suffi-

ciently thinly woven to admit enough of light and air are too often inadequate to exclude the frost. Thick blinds, therefore, have to be rolled up and down according to the changes of the weather, and when this is done carefully and intelligently good crops are generally insured. The real remedy is glass; for this, while it usually excludes such frosts as occur in spring, admits light, also air when due provision is made for ventilation. Glass coverings, although involving a little extra outlay in first cost, are in the end the most economical, because most permanent and effectual.

A plan of covering walls with glass projected by Messrs. Messenger & Co. of Loughborough, which appears to possess a combination of advantages, is shown in the accompanying engraving. The structure is light, easily fixed, readily removed, and ample ventilation is afforded. The lights when fixed slide on brass rollers, so that the trees can be syringed

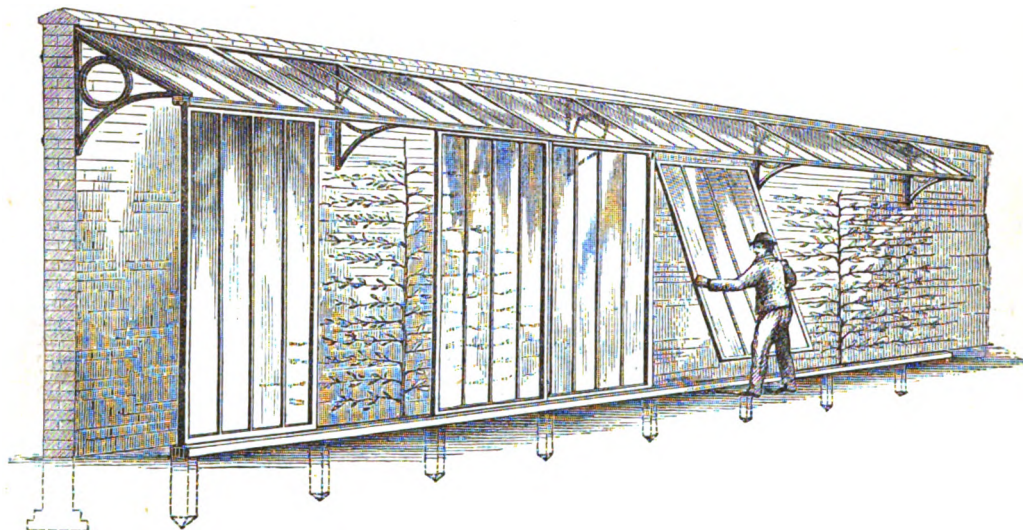


Fig. 30.—MESSENGER'S WALL PROTECTION.

when necessary; and when protection is no longer needed by the trees the lights can be utilised for the growing of Cucumbers, Melons, and other tender crops.

Glass, however, while being the best of all protectors for fruit blossom cannot readily be obtained by all who possess fruit trees, and those should not neglect at this period of the year the covering of their trees with nets or thicker blinds, as may be the most convenient, for by these aids the prospects of a crop of fruit are considerably increased.

EUCHARIS AMAZONICA.

As to the merits of this grand plant in supplying a succession of flowers at all times of the year, and those of the first order, there can be no difference of opinion, and amongst stove-flowering plants there are few to equal it; therefore no collection of plants however select it may be is complete without the *Eucharis*, for whether it is grown for exhibition purposes or to supply cut flowers for epergnes, vases, or bridal bouquets it is alike valuable. There are few flowers that enjoy the same amount of popularity the *Eucharis* is justly entitled to, as witness the great quantity of blooms that are annually sold in Covent Garden Market. The length of time the flowers will last when cut and placed in water is another point that is highly in its favour, and provided the water be changed occasionally they will keep good and fresh for three weeks or a month.

In describing the cultural details I do not pretend to say that mine is the only mode of culture that produces good results, but I am prepared to say that it cannot be surpassed from the satisfactory way in which the plants under my charge here are constantly flowering. It is not unfrequently that we hear the charge of shyness in flowering preferred against the *Eucharis*, but those that do so have yet to master the details of its culture, for most assuredly under good management it is both a free-growing and most profusely flowering plant.

In order to make the cultural remarks as plain as possible

I will take the case of those who purchase a thrifty young plant well established in a 6 or 8-inch pot; this should be shifted into a pot two sizes larger, at the same time taking care to have the pots thoroughly drained. The soil I have found, after considerable experience, to be the most suitable for this plant is prepared by well mixing together two parts of a rather light turfy loam, one part of good fibrous peat, and a moderate proportion of well-decomposed cow manure, with a free admixture of silver or river sand. Some gardeners recommend burying the bulbs very deep in the soil, but I have found such practice to be erroneous; therefore I advise that the bulbs be buried just below the surface only.

Bottom heat is not absolutely necessary to the successful cultivation of the *Eucharis*, but it will be found highly beneficial in promoting a healthy and vigorous growth.

The plants must be shifted on as fast as they fill the pots with roots until they have grown to specimen size, or as large as they may be required; afterwards potting them once in two years will be quite sufficient. I am no advocate of a starving system, but I have found the *Eucharis* to flower more freely when somewhat confined at the roots than when over-potted. In shifting the plants into larger pots the soil should be used in a lumpy state, and some pieces of charcoal may be mixed with it. When in active growth the plants require an abundant supply of water at their roots, therefore care should be taken to drain the pots most effectually; and in potting into large pots leave a depth of 3 inches from the surface of the soil to the top of the pot, for in watering it will be found necessary to allow the plant to have a good soaking. When the plants are growing freely they will be greatly benefited by watering them twice a-week with liquid manure. The best I have yet used has been obtained by steeping sheep droppings or cow manure in soft water; it should be allowed to stand for a time until it has become clear.

The *Eucharis* delights in a temperature ranging from 65° to 80° with plenty of atmospheric moisture, which can be obtained by sprinkling the walks and every other available space during

bright sunny weather. If the plants are required to bloom at any specified time remove them to a cool house, give them only just sufficient water to prevent the foliage from flagging, and after resting them for five or six weeks remove them back to the stove and supply them plentifully with water again, and in three or four weeks the flower spikes will appear.

In taking charge of the gardens here in the spring of 1870 the plant that was mentioned by a correspondent of the Journal for February 28th was in a 9-inch pot, but in a very unhealthy condition. The plant was at once turned out of the pot, every bit of soil was shaken from the bulbs, which were washed with clean tepid water, and then potted and plunged in a bottom heat of from 70° to 80°.—W. JORDAN, *Gardener to J. Boustead, Esq., Wimbledon.*

[We have seen the plant that was referred to on page 166 as having produced upwards of five hundred flowers in a year; it is fully 6 feet in diameter, and is the finest specimen that has come under our notice. This will reply to "A SUBSCRIBER OF LONG STANDING."—EDS.]

A WINTER'S RAMBLE.

FOR some years I have made a ramble during a particular week in January, and always in the same locality, in order to note what plants were in bloom, as a record of the mildness or severity of the autumn and winter seasons, and for other reasons. Whilst in preceding years I have not found on an average more than twelve plants in flower in the district to which I limited my survey, this year I have recorded upwards of eighty British wild flowers, besides an unusually large number of garden flowers. The following is the list:—

<i>Caltha palustris</i>	<i>Geum urbanum</i>	<i>Veronica Buxbaumii</i>
<i>Helleborus foetidus</i>	<i>Alchemilla arvensis</i>	<i>Veronica agrestis</i>
<i>Capsella Bursa-pastoris</i>	<i>Spergularia arvensis</i>	<i>Teucrium Scorodonia</i>
<i>Draba verna</i>	<i>Sedum reflexum</i>	<i>Ballota nigra</i>
<i>Cardamine hirsuta</i>	<i>Cherophyllum temulen-</i>	<i>Lanum album</i>
<i>Barbarea vulgaris</i>	<i>tum</i>	<i>Lanum purpureum</i>
<i>Sisymbrium officinale</i>	<i>Federa Helix</i>	<i>Lanum amplexicaule</i>
<i>Cheiranthus Cheiri</i>	<i>Gallium aparine</i>	<i>Primula vulgaris</i>
<i>Sinapis arvensis</i>	<i>Sonchus oleraceus</i>	<i>Arneria maritima</i> (in
<i>Viola odorata</i>	<i>Crepis virens</i>	<i>gardens</i>)
<i>Viola tricolor</i>	<i>Leontodon Taraxacum</i>	<i>Plantago major</i>
<i>Lychnis vespertina</i>	<i>Lapsana communis</i>	<i>Plantago Coronopus</i>
<i>Sagina procumbens</i>	<i>Carduus nutans</i>	<i>Polygonum aviculare</i>
<i>Stellaria media</i>	<i>Senecio vulgaris</i>	<i>Euphorbia Peplus</i>
<i>Stellaria graminea</i>	<i>Bellis perennis</i>	<i>Euphorbia helioscopia</i>
<i>Arenaria trivernis</i>	<i>Chrysanthemum leucan-</i>	<i>Buxus sempervirens</i>
<i>Cerastium viscosum</i>	<i>themum</i>	<i>Urtica urens</i>
<i>Cerastium vulgatum</i>	<i>Matricaria Parthenium</i>	<i>Galanthus nivalis</i>
<i>Geranium sanguineum</i>	<i>Matricaria inodora</i>	<i>Luzula campestris</i>
<i>Geranium molle</i>	<i>Anthem. nobilis</i>	<i>Calluna vulgaris</i>
<i>Geranium Robertianum</i>	<i>Arbutus Uneio</i>	<i>Erica cinerea</i>
<i>Ulex europæus</i>	<i>Ilex aquifolium</i>	<i>Spergularia rubra</i>
<i>Ulex nanus</i>	<i>Myosotis collina</i>	<i>Daphne Mezereum</i>
<i>Viola hirsuta</i>	<i>Veronica hederifolia</i>	<i>Scieranthus annuus</i>

In addition to these I have found several species of Rubus, Rumex, Cyperaceæ, Juncaceæ, and Gramineæ. This list will, I daresay, cause surprise to some, and perhaps doubt; but in all cases except one or two the specimens I gathered were very good ones, and would not have disgraced any collector's herbarium. I have not included plants found in bud, though I have taken a note of them, nor those in fruit whose petals had evidently just fallen, but only those actually in blossom. I found them all within a few miles of Birmingham. I had not the opportunity to wander through Sutton Park, or doubtless some few others would have been added. Many of the localities where these plants were gathered are in exposed situations, and therefore one would have imagined it useless to look for them; and when we remember that in the Christmas week there had been several nights of sharp frost, and snow had fallen also, it is all the more surprising that so many different specimens should have been found. I am somewhat astonished that no list has appeared from the southern counties, which are so much warmer than our own midland counties; for, judging from a letter received from a friend in Devonshire, I should suppose that most of the summer flowers are still in bloom. He compares the Christmas week there to the Australian Christmas, and says that he gathered wild Strawberries (*Fragaria vesca*) in abundance on Christmas-day. He also mentions that two nests with eggs had been found—the one a thrush's, the other a hedge sparrow's. All these facts are certainly very interesting, and point to a most exceptionally mild winter.

Of the foregoing list some are plants that flower at this season of the year, and a mild winter only accelerates their flowering. Some few others may be seen in flower all the year through, but by far the greater number are, so far as the

experience of the last ten years allows me to speak, strangers to the late part of the autumn, and certainly to the winter. There are several absent that I have recorded in other years, such as *Ranunculus acris* and *R. sceleratus*, *Stellaria uliginosa*, *Erica tetralix*, *Lychnis diurna*, *Nepeta Glechoma*, *Senecio Jacobæa*, &c., and, strange to say, I did not find *Potentilla fragariastrum*, a very early little flower, neither did I find *Tussilago Farfara*. The mild weather still continues, and I notice that the Hazel and Willow are blossoming, and the Hawthorn leaves already appearing. Doubtless others of your correspondents can add a few more to the list I have given. I think the record would be worth the while, for careful observation may enable us in course of time to ascertain with something like accuracy in what manner and to what degree plants are affected by the weather. So far we notice that whilst certain plants live through the autumn into the winter under certain conditions of weather, others that appear much hardier do not; whilst, for example, *Ranunculus acris* or *Centaurea nigra* will be found sometimes in January after a severe and cold autumn, yet when the latter season has been mild and the winter also they are not to be found.—REV. JOHN CASWELL (in *The Midland Naturalist*).

OUR BORDER FLOWERS—KIDNEY VETCH.

THE Legumes are a very extensive race, but Our Lady's Finger, as called by some, though seldom seen under cultivation, possesses merits that claim our attention. *Anthyllis Vulneraria*, also known as Woundwort, under many circumstances proves to be an useful addition to our forage plants as well as beautifying our borders. In its native home in upland districts on the limestone it may be often found covering large spaces of ground, and when in bloom has an appearance that is not soon forgotten by the collector of native plants. There are variations of colour in our own Kidney Vetch, which by some are considered to represent permanent varieties. Their contrast of colours with their woolly and silvery-grey appearance adds to their beauty and interest. The plants are of somewhat trailing habit, and they appear to the best advantage when left to themselves. Our *Anthyllis* is more abundant on the limestone, where the flowers often change their colour from yellow to pink or rose, and in some instances to white; in less elevated and gravelly situations I have not met with the same variations of colour. They are useful plants for large rockeries and sandy slopes. The Mountain Kidney Vetch, *Anthyllis montana*, from the Alps, is one of the most interesting of the group, having dense heads of pretty pink flowers. Where there is any pretension to a collection of choice alpine plants this ought to have a very prominent place, on the rockery especially. The white variety is equally desirable, but is seldom seen. *Anthyllis*es enjoy a rocky medium, but they will thrive in ordinary garden soil mixed with grit or lime rubble. They are increased by seed, sown as soon as ripe or in the spring, in well-drained sandy soil kept moderately moist. When the seedlings are large enough to be handled prick them out in a sheltered situation, and subsequently plant them out where they are to remain permanently.—VERTAS.

CONOCLINIUM IANTHINUM.

ALTHOUGH admirably adapted for the decoration of conservatories and other structures during the early spring months, and for yielding cut flowers of the delicate blue of the *Ageratum*, the plant now figured is not so extensively cultivated as its merits deserve. The pleasing colour of its flowers associates well with other plants that are in beauty at the same time, and from all of which it is very dissimilar.

This *Conoclinium* is of easy propagation and cultivation. Propagation is readily effected by cuttings of the young shoots planted in the usual way, and kept in a moderate and close heat. The plants when established in separate pots of rich, light, loamy soil, should be frequently topped, and shifted into others of larger size before the roots become crowded in the pots; they should be kept near the glass in a house or frame where they can have a moist atmosphere with plenty of air, and a temperature of from 60° to 65°. Two-thirds of light free loam to one-third of good leaf soil or fibrous peat incorporated with sand enough to keep the mass open and porous, will form a compost suitable for the plants at any stage of their growth. By selecting established cuttings in spring, large plants may be grown by a continuance through the summer of the stopping and shifting processes; and such plants, from the free-flowering

habit of the species, are useful for late autumn and winter flowering in a warm conservatory. Young plants thus managed are preferable to older cut-down plants. But perhaps the most useful plants are those raised from cuttings struck later in the season and flowered in small pots, the plants not having been stopped, or only stopped once. Such plants produce fine

heads of flowers, and are very valuable for front rows in conservatories and for intermixing with other plants in the furnishing of vases. We have seen them effectively employed in vases in the conservatory at South Kensington, the plants being in quite a dwarf state, and having dense heads of *Ageratum*-like flowers.

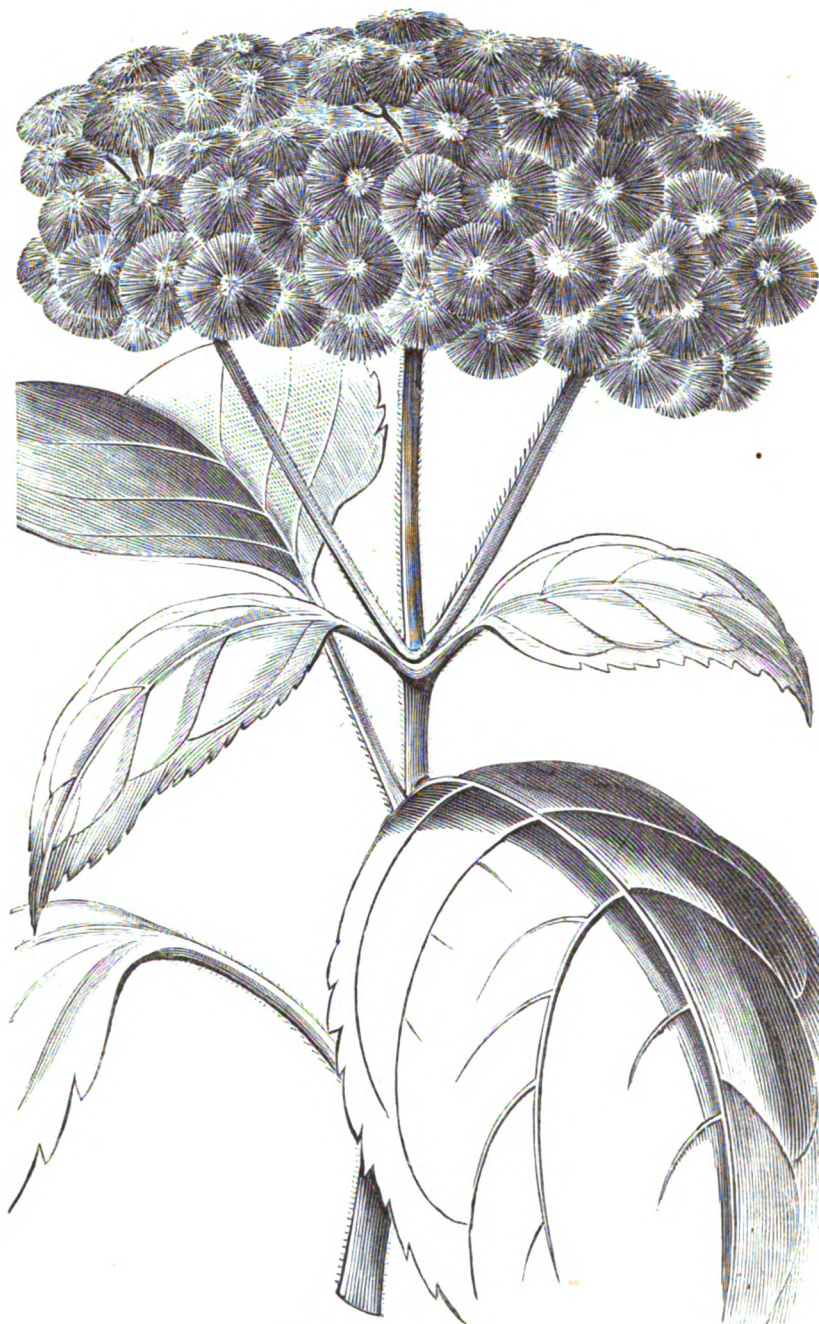


Fig. 31.—CONOCLINIUM LANTHINUM.

During the winter an intermediate house affords a suitable temperature for the plants, and in summer they thrive well in frames in which a genial temperature is maintained by moisture and judicious ventilation. The plants may also be planted out in a sheltered situation during the summer, and be potted on the approach of cool weather in autumn.

Conoclinium lanthinum is a native of St. Catherine's in Brazil, from whence it was introduced by Mr. Voss to the collection of the late Mr. Verschaffelt at Ghent. It first flowered

in England in 1850 in the nurseries of Messrs. Rollisson of Tooting, and Messrs. Henderson of St. John's Wood. It is both distinct and attractive, and should be cultivated wherever a supply of spring-flowering plants is required.

THE ELECTRIC AUTOMATIC VENTILATOR.

THE model of this ingenious contrivance which was exhibited by Mr. Symonds at South Kensington on the 5th inst. merits

a fuller notice than could be given to it in our report of the meeting. We have since had an opportunity of more carefully inspecting the model, and can testify to its certainty of action. In its present form there can be no doubt that a hall or building not exposed to the sun may be ventilated by this novel contrivance in a satisfactory and practical manner. Presuming that a temperature of 60° is required the ventilator will open when the heat side of the electric thermometer reaches that figure on the scale, and the moment the mercury falls to 58° on the cold side of the scale the ventilator closes. In each case, both when open and closed, the ventilator is locked, and cannot be influenced by any other means than a variation of temperature. If the temperature increases to 60° and falls again to 58° fifty times in an hour the ventilator is as certain to act as the temperature is to vary above or below those or any other figures required, and to which the electric wire may be set.

Useful as that achievement may be for regulating the tem-

perature of a public hall or private room it is manifestly not sufficient for the ventilation of garden structures exposed to the action of the sun, and where the heat is required to increase and decrease gradually between a long range of figures as indicated by the thermometer. The inventor not being a horticulturist had necessarily conducted his experiments under a disadvantage so far as regards the ventilation of garden structures, and he was glad to receive a standard of requirements so that he might endeavour to render his invention really serviceable in gardening practice. We therefore suggested to Mr. Symonds that unless he could ensure a portion of the ventilators of a house to open at 50°, a further portion at 55°, and again at 60°, 65°, 70°, 75°, 80°, 85°, and 90° as the heat increased, and to close them again in a reverse graduated ratio of temperature or at any heat required, that his invention could be of little if any real value in gardening practice. He assures us that he shall have no difficulty in attaining the standard

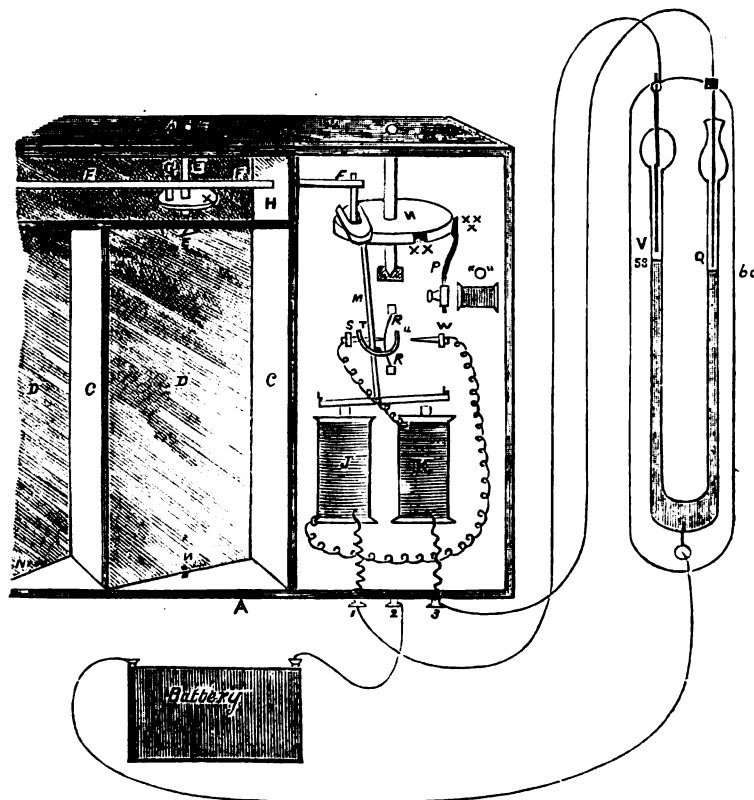


Fig. 32.—SYMONDS' ELECTRIC AUTOMATIC VENTILATOR.

suggested, and that he will be prepared to exhibit a model which shall carry out all the conditions named.

The following references to the engraving will enable the working of the system to be understood. Only a portion of the moveable ventilating slides are shown :—

A, The frame. D, Slips of glass turning on points N. When the ventilator is open these slips are at right angles. C, Slips of glass or wood fixed at right angles to keep slips D at an angle of about 45° when shut. In the drawing the ventilator is represented as closed. The slips D are connected with the electric apparatus by means of upright rods E; plates or metal, X; pivots, G; and the connecting rod F, which passes through the hole H into the box containing the electro magnets, &c.

The ventilator is connected by means of wires to a constant galvanic battery, also an adjustable electric thermometer, in precisely the same manner as an electric bell; the ventilator in this case taking the place of the bell. By reference to the illustration it will be seen that the electric thermometer is set on the cold side at 58°, and on the heat side at 60°; but the thermometer can be set to any other degree desired.

The action of the apparatus is as follows, supposing the ventilator to be shut :—Immediately the mercury in the heat tube rises to 60° it makes contact with the wire Q, completes

the electric circuit, and converts the electro magnets J K into powerful magnets; these attract the piece of iron L, and throw the rod M to the right, taking with it the connecting rod F, and opening the slips D by placing them at right angles, thereby allowing a current of air to pass between them and the slips C. At the same time a disconnection of the electric current takes place (thus relieving the battery entirely) by means of the prong marked T, which throws the buckle B R on to point W, the connecting point of the J or shutting magnets. The current is likewise disconnected when the ventilator is shut by the point U, in the same manner but in the opposite direction. The ventilator having been opened a catch marked P slips into a slot marked X X, thus locking the D slips. When the return current sets in (which occurs immediately the mercury in the cold side of the thermometer rises and touches V) the catch P is attracted by the electro magnet O and drops into X X immediately, thus locking the slips when shut.

The entire apparatus is in every way self-acting, and the inventor states that the working parts can be made so as to stand any amount of hard work, the electric parts being thoroughly secured from dust, damp, or accident by being enclosed in a box which can be fixed in a convenient position in the house.

How far the system can be carried out in a practical manner, and to what extent it can act serviceably in the moving of a long series of ventilators, can only be determined by further experiment. We can only say that the model acts well, and as it pertains to a subject of great importance the invention is worthy of being submitted to the public in a form as intelligible as we have been able to obtain.

CERTIFICATING SEEDLINGS.

YOUR correspondent at page 184, who does not see the equity of granting certificates to Cyclamens while such honours are denied to Cinerarias, herbaceous Calceolarias, and Pelargoniums, does not state the case exactly as regards the Pelargoniums. As I understand it, the Floral Committee refuses to award certificates to seedling Pelargoniums that are sent for adjudication without names. That a great number of named seedlings are certificated annually by the Committee is of course a question beyond dispute. The fact of the Committee declining to recognise unnamed Pelargoniums has, therefore, nothing to do with the question of making awards to such plants as Cyclamens, Calceolarias, and Cinerarias, individual varieties of which cannot be raised true from seed. I am at one with the Committee on the latter point; but if any of the three plants named could be propagated by cuttings as easily as seedling Pelargoniums, or by any other means so long as they can be kept true, then undoubtedly they would be worthy of the coveted honour, and the Floral Committee I am sure would be the first to recognise the justness of their claim to consideration. While a plant, or any particular class of plants, cannot be kept true by propagation in some way it has no claim to a certificate, but it is another thing to commend any particular strains, say, of Cyclamens, Calceolarias, or Cinerarias.—SABRINA.

YOUR correspondent on page 184 suggests that unless plants "come true from seed" it is not right that they should be honoured with certificates. That can scarcely be a satisfactory condition of determining the point, for surely if they can be reproduced with certainty by any mode of propagation they are worthy, when their merits are of an exceptionally high order, of being awarded the honours in question. Pelargoniums are not raised true from seed, but they are readily increased by cuttings: hence a rule of the Floral Committee prevents certificates being awarded to "yearly seedlings," which probably means that Pelargoniums must be propagated by cuttings in order to show the character and habits of the plants before new varieties are certificated. But then Cinerarias can be increased from offsets, and thus be kept true to name as well as Pelargoniums can be perpetuated by cuttings, and yet Cinerarias are not eligible for certificates, however meritorious the varieties may be. Cyclamens, on the contrary, are awarded the coveted honours, and they cannot be increased nearly so readily by division as Cinerarias; in fact varieties of both plants are in practice increased in the same manner—that is, by seed, and neither of them can be relied on to come true to character by that mode of increase. As a matter of fact Cinerarias, Calceolarias, and Cyclamens are equally valuable as staple decorative plants, and stocks of them are raised in the same manner—i.e., from seed. That being so, would it not be preferable to grant certificates of honour to exceptionally good collections of those plants as "strains," instead of singling out particular varieties of one genus and passing over those of the others, however meritorious the varieties may be?—A SPECIALIST.

CAMELLIAS AT WALTHAM CROSS.

VISITORS to the recent meetings of the Floral Committee at South Kensington cannot fail to have admired the beautiful boxes of Camellia blooms which have been exhibited by Messrs. Wm. Paul & Son. Arranged in the same manner as Roses, the effect produced was quite as imposing during the dull period of the year as are collections of Roses during summer. But however imposing cut blooms of both Roses and Camellias are when neatly arranged in fresh green moss, they do not afford quite sufficient means of determining the relative value of the several varieties for general decorative purposes. If in the case of Roses much depends on the habits of the plants in estimating the usefulness of the varieties, still more is it necessary to judge Camellias by the same rule, for they vary in their habits of growth and character of flowering much more

than do Roses. For instance: Camellias which are represented by grand blooms in the exhibition box may only be seen on straggling or scrubby plants at home, and as both the growth of the plant and condition of the foliage of Camellias are almost or quite equal in importance to the beauty of the blooms, it becomes necessary to inspect the plants to form a satisfactory estimate of the value of the varieties. Than a visit to a nursery where these splendid winter-flowering shrubs are extensively cultivated no better opportunity can be afforded for the purpose suggested. Camellias at Waltham Cross are about as prominent a feature in winter as Roses are in summer. They are in fact cultivated as a speciality, the selection of the varieties being both numerous and choice, and the plants are in splendid condition.

Two large houses are devoted to the plants, which are nearly all grown in pots and tubs, and a large number are also accommodated in brick pits. The plants are propagated on the premises, cuttings being taken from plants of the old single-flowered species, which are planted out for affording a supply. These are struck in the propagating house, and the large batches now in process of rooting prove that the cuttings strike as surely if not so quickly as Pelargoniums, for scarcely a "miss" was to be seen. These when established are grafted with the choicer varieties, and the plants are grown on a steady manner which is conducive to their permanent health and to their prolonged thrifty condition. The soil in which they are grown is light turfy loam with a slight admixture of peat and silver sand, and that this compost is suitable the excellent condition of many splendid specimens testify. Although these cannot be severally noticed, a magnificent example of *Imbricata* must not be passed in silence. It is growing in a tub, the plant 14 to 15 feet high, and 7 or 8 feet in diameter. It is handsome in shape, is laden with large flowers, and its dark glossy foliage falls to the surface of the tub. A better example of superior culture it would be difficult to find.

The plants are potted and pruned in the autumn after the buds are set. By potting in spring longer and fewer growths are obtained, but for securing closely-grown plants combining robust health with a great profusion of flowers, autumn potting and pruning are preferred in this nursery, and the condition of the plants affords ample evidence of the soundness of the mode of culture that is practised.

In one house the plants are grown solely for affording cut blooms. The shape of these plants is not considered at all, they are simply "cut about anyway," just as the blooms and sprays of blooms are wanted. The plants in this house are not grown for sale, but only the crops of flowers they produce are considered. But in the other, the principal house, a different system is practised. The blooms produced here are only gathered for wiring, and pruning is afterwards done in a systematic manner, and is subservient to the health and well-furnished condition of the plants. This house, a span-roofed structure, is 117 feet long by 30 feet wide. A border is arranged along the sides of the house, and there are beds on both sides of the central walk. There are thus three walks or avenues of plants, and their appearance now the plants are in bloom is remarkably fine. Amongst the great number of varieties flowering the following were conspicuous by their general excellence:—

WHITES.—*Alba plena*.—This old favourite is still one of the most useful by its free growth, the profusion of flowers, and purity of colour.

Fimbriata.—This chastely beautiful and pure Camellia is not always seen in satisfactory health, but here it is growing even more freely than the old Double White. *Fimbriata* should be in all collections.

Centifolia Alba.—A noble flower, round, smooth, large, pure, and very fine. A splendid variety.

Montironi vera.—Fine all round. Flowers large, cup-shaped; petals of great substance, mostly pure white but occasionally tinted with rose; foliage fine. Excellent.

Princess Charlotte.—A massive and noble flower of excellent form. Plant vigorous; foliage large and rich; petals stout, white slightly tinted with rose. A grand variety.

Piam.—White, very chaste; flowers medium-sized and of excellent shape, petals imbricated. Very pure and very good.

Funny Sanchioli.—Plant free, foliage very fine; flowers large, well formed, and pure. A beautiful variety.

Alba Casoreta.—Habit of plant excellent; foliage fine; flowers large, full, flat, regularly formed, and pure. One of the best.

Countess of Orkney.—A well-known and deservedly popular

variety, free in growth and producing large tinted flowers profusely.

Candidissima.—Small, but very chaste and pure. Rather a delicate grower.

Lady Hume's Blush.—A well-known and useful variety, especially for affording cut blooms early.

Ninfa Egeria.—This the last of the whites to be mentioned is certainly one of the best. Habit of plant excellent; foliage medium-sized, rich, and glossy; flowers medium, cup-shaped, petals of great substance and very pure. Very floriferous and superior.

RED OR CRIMSON.—*Bealii*.—This is one of the latest as it is one of the brightest of all Camellias. It has more scarlet in its petals than any other variety. Very useful.

Maria Nicholas.—Bright crimson faintly striped with white; flowers of excellent form and imbricated; habit and foliage good. Excellent.

Rose de la Reine.—Rosy cerise, veined with crimson; petals round, imbricated, and flowers of excellent form; habit good. A splendid variety.

Archduchess Isabella de Toscani.—Deep rosy crimson; flowers large, full, and smooth; petals cupped and imbricated; habit good, and foliage fine. Excellent.

Madame Lebois.—Rosy crimson; flowers rather small; petals slightly pointed and arranged with geometrical precision. Perhaps the most perfectly formed of all Camellias.

Il Beduino.—Deep crimson, fine massive flowers of excellent form; plant robust. Very fine.

Coquettina.—Coral red; petals of great substance; flower smooth and well formed; habit and foliage fine. Very good.

Elatior.—Rosy crimson, veined and occasionally marbled with white. Growth very free, and plant extremely floriferous. A very useful variety.

Benneyi.—Rosy red, slightly striped; flowers very fine; habit and foliage excellent. A splendid variety.

Eximea.—Soft scarlet, fine wax-like petals; large flowers, habit and foliage fine. Very useful.

Rafia.—Rich crimson scarlet, sometimes tinted with white; flowers of excellent form; habit and foliage good. A superior variety.

Manara.—The last to be noticed in this section and probably the best. Colour crimson; petals rather pointed and of great substance, flowers of admirable form; habit of plant excellent. A grand variety.

ROSE.—*Madame de Strelaloff*.—Bright lively rose, flowers of excellent form; splendid foliage. Very good.

Sarah Frost.—Deep rosy pink. A medium-sized, charming, symmetrical flower. Very attractive.

Marchioness of Exeter.—Peach. A well-known, distinct, and useful variety.

L'Avenir.—Pink. Flowers large and finely formed; petals imbricated and of great substance; habit and foliage good. The best of its colour and a superior variety.

Lucretia Gazziana.—Rose banded with white; flowers large, flat, and imbricated; foliage and habit good. Very useful.

Halleyi.—Very deep rose, striped with white in the centre, splendid recurved outer petals; habit good. Fine.

Principessa Vidoni.—Deep rose, veined and striped in the centre; petals round; foliage small. A profuse bloomer and effective.

Bealii Rosea.—Bright rose. Free and very useful.

STRIPED.—*Tricolor*. Single. In form resembling the fine old single scarlet Corallina. Ground pure; blotches and stripes bright; stamens conspicuous. Distinct and attractive.

Souvenir de Emile Dufrene.—Rosy red, with a broad white band down the centre of the petals, which are pointed and evenly arranged; habit of the plant good. Floriferous and very effective.

Adelina Benvenuti.—Flesh colour, clearly striped and blotched with bright rose; habit of plant good. Very free and fine.

Bonomiana.—Colours clear and distinct; habit of plant and foliage good. A well-known and prized variety.

Such are a few of the most striking varieties from the unique collection at Waltham Cross. Other features of the nursery are worthy of notice, but cannot be referred to now.—VISITOR.

NOTES AND GLEANINGS.

At the ordinary floral meeting of the Royal Horticultural Society held at South Kensington last Tuesday the following

new Fellows were elected—viz., Right Hon. A. S. Ayrton, Lady Beauchamp, Hon. Isabel Calthorpe, Harold L. Coffin, Lieut.-General Rudolph de Salis, C.B., H. G. Elliott, Bartle G. Goldsmid, P. C. Hanbury, James Henry, Mrs. Huggins, W. G. Lysley, Lieut.-General Sir Thomas McMahon, Mrs. Nangle, Mrs. Simpson, Sir Julius Vogel, K.C.M.G.; Rev. B. Winthrop, &c. Miss Florence Williams and J. Rose were admitted guinea members. We understand that a legacy of £100 has been left to the Society under the will of the late Miss Parry of Ham.

— WE understand that a PREMIUM will be offered by some Fellows of the Royal Horticultural Society for species of the order of AMARYLLIDACEAE, of which due notice will be shortly given. It is very desirable that this beautiful and varied race of plants should be brought together if only for scientific purposes, as much confusion still exists amongst them.

— WE have the authority of Sir Joseph Hooker for stating that botanists, students of natural science, professional gardeners, and artists are admitted to the Royal Botanic Garden at Kew every day at an earlier hour than the general public on making application to the Director, who will at once issue an order for admission.

— WE recently noticed a WHITE PRIMULA of considerable promise in the nursery of Messrs. J. Laing & Co. at Stanstead Park. So distinct is it by its purity, form, and substance of petal that it has been named Princess Louise. The name, however, was not given until it had been proved to come quite true from seed. It originated in the nursery, and it is quite expected that it will become an established favourite of this indispensable winter flower.

— WE last year spoke approvingly of the dwarf free-flowering RHODODENDRON EARLY GEM as an effective decorative shrub for both the conservatory and shrubbery. The plants exhibited by Messrs. Veitch at South Kensington on the 5th inst. afforded sufficient evidence of the value of this early dwarf and floriferous shrub, for although only dug up from the nursery on the day previous they were a complete mass of rosy purple flowers, so much so that the small dark green foliage was almost hidden. The plants were only about a foot in height; the individual flowers were from 1 to 2 inches in diameter, and produced in moderate-sized compact trusses. They were much deeper in colour than those produced by plants which were exhibited earlier in the season and which had opened under glass. This is one of the most distinct and effective of dwarf-growing shrubs for early spring decorative purposes.

— FROM the schedule of the Spring Show of the Botanical Society of DURHAM, NORTHUMBERLAND, and NEWCASTLE-UPON-TYNE we gather that the admissions to the Newcastle Shows during 1877 numbered 35,000, a fact which shows that the spirited efforts of the managers and the excellent exhibitions were duly appreciated. The spring Show of the present year is announced to be held in the Town Hall and Corn Exchange on April 3rd and 4th. In order to encourage gentlemen's gardeners a class has been added from which nurserymen are excluded; it has also been decided that no exhibitor can take more than one prize in each competition. The schedule is comprehensive and well arranged, there being altogether ninety-four classes. The plant classes, which include forced shrubs and greenhouse plants, in section A are open to all, as also are the classes for bulbs in bloom, and the classes for cut flowers of Rhododendrons, Azaleas, Camellias, Roses, &c. In the same section classes are provided for ladies only. Section B, which comprises upwards of thirty classes, is open to all, nurserymen excepted; and section C, upwards of twenty classes, is limited to amateurs only. Provision is thus made for every type of exhibitors, and as the prizes offered are liberal, exceeding in value £185, an extensive display may be anticipated. The total amount of prizes provided for the three exhibitions of the year exceeds £700.

— AMONGST the many ornamental plants in Mr. B. S. Williams's conservatory at Holloway few are more striking than ARAUCARIA COOKII. This Araucaria, which is presumably a variety of A. excelsa, combines in a remarkable degree massiveness with elegance. The dense branches droop gracefully, which renders the plant, or rather miniature tree, highly attractive. Another variety of the same species, A. excelsa robusta, commands attention by its flat rigid branches, the topmost tier of which has a singular effect by the five branches composing it subdividing into clearly defined triangles growing with geometrical regularity, and which are

rendered the more striking since they form the very tops of the plants, the leaders not as yet having made any growth. These and other *Araucarias* of the same type are highly ornamental in a small state, and are well adapted for various purposes of decoration.

— FEW hardy flowers are more effective during the spring and early summer than **PANSIES**. Both the show and fancy varieties are represented in colours as brilliant as are to be found in any other flowers. The bedding **Pansies** (*Violas*), are also extremely gay when planted in masses. In order to produce not only good blooms but a long continuance of them, the importance of early planting, especially in the south and in dry districts, cannot be too emphatically urged. If the planting of **Pansies** were completed before the middle of March instead, as is not unfrequently the case, being deferred until May, we should hear fewer complaints of the transient beauty of this beautiful family of hardy plants.

— It is gratifying to observe that in comparatively small gardens excellent practice is often to be found. We recently had the pleasure of inspecting the garden of J. Boustead, Esq., at Cannizaro House, Wimbledon, and were much pleased with the condition of the pleasure grounds and health of the plants. *Cinerarias* had foliage more than a foot in diameter, and with proportionally large flowers and no insects. *Clerodendron splendens* planted out and trained on the back wall of a stove has produced large and brilliant scarlet trusses throughout the winter, and continues producing them still; and the not less brilliant *Gesnera macrantha* merits notice on account of the intense velvety richness of its fiery scarlet tube-shaped flowers. The grounds also contain noteworthy specimens of trees and shrubs, and the whole aspect of the place betokens good management on the part of Mr. Jordan the gardener.

— AS attractive lawn ornaments few shrubs are more effective than well-grown and carefully managed specimens of choice **HOLLIES**. Some moderate-sized yet very beautiful examples are established in the Misses Christy's gardens at Coombe Bank. Besides well-trained specimens of the Gold and Silver Queen varieties, some distinct pendulous forms, both green and variegated, are especially ornamental. The weeping character of these is as decided as that of the drooping *Ash*, and the effect produced both in winter and summer is excellent. The condition of these handsome shrubs reflects much credit on Mr. Moorman, the gardener, and their appearance suggests their great value for either large or small lawns. The present is a very good time for transplanting **Hollies**, but it is important that the roots are kept moist during the process of removal.

— THE BOROUGH OF HACKNEY (late Stoke Newington) **CHRYSAETHUM SOCIETY** have issued their schedule, from which we observe that amongst the prizes offered are four silver cups—one by the Westminster Aquarium Company (where the show will be held) for six plants in 8½-inch pots; two by the Society for the best twelve and twenty-four incurved cut blooms respectively; and one by Messrs. Dixon & Son, Amhurst Nurseries, Hackney, for twelve blooms of Japanese varieties.

— PART 3 of vol. v. of the "JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY" is a sober pamphlet containing classified reports of *Violas*, also reports of *Clarkias*, *Iberises*, *Viscarias*, and *Godetias* grown at Chiswick in 1877. The *Elixir* or Buffalo Horn Manure is also favourably alluded to, and there is a complimentary notice of the late Mr. Andrew Murray, who was the Society's Scientific Director and Editor of the Journal in question.

WORK FOR THE WEEK.

KITCHEN GARDEN.

LIGHTLY fork over *Asparagus* beds, placing the rough portion of the surface soil, &c., in the alleys, where it should be pointed-in preparatory for growing *Cauliflowers*. The plants when strong and well hardened-off may be planted one row in each alley 18 inches to 2 feet apart. In the south this may be done now, but in cold localities the planting of the *Cauliflowers* may be delayed until the end of the month, or later if the weather be unfavourable. Prepare the ground intended to be planted with *Asparagus*. It is necessary to mix a quantity of well-decayed manure with the soil, which should be loosened to a depth of 2 feet or more by trenching. *Asparagus* prefers a rather light moist soil, yet free from stagnant water, and it can hardly be too heavily manured. Seaweed and sea sand are good additions to

the soil for this crop, as also is vegetable refuse. We plant in beds 4 feet wide, placing three rows of plants in a bed, with 2-feet alleys between the plants, which are 1 foot apart. Planting is proceeded with as soon as the tops of the seedlings are an inch or two long. Any *Seakale* too small for forcing and which has been kept in moderately moist soil or sand should have the crown or growing-point cut off and then planted in rows 18 inches apart, the sets being a foot asunder. Portions of the young roots of the thickness of the little finger may be cut into lengths of 4 to 6 inches, and be planted at the same distance. Seed of *Seakale* may also be sown now in warm situations, but defer sowing for another fortnight in cold localities and positions. Plant *Cabbage* plants in their permanent quarters, including the Red for pickling purposes. These remarks apply to the August sowing, the plants having been transplanted in beds. A planting made now succeeds those planted in late summer or early autumn.

HARDY FRUIT GARDEN.

Fig trees against walls may now have their winter covering removed, keeping, however, protecting material in readiness for use in case of frost, but in all mild weather the trees are better exposed. Pruning may be performed, but we prefer to defer it until the young fruit appear; indeed if due regard has been had to summer pruning and stopping not much pruning at this time will be necessary. Only the strongest and least ripened shoots should be taken out, thinning also the short-jointed fruitful wood, as the fruit under a mass of leaves does not ripen so well as that having the advantage of light and air.

Strawberries are occasionally planted at this season, indeed we can remember the time when the practice of spring planting was general and good crops were obtained: that mode is, however, generally too "slow" for the present advanced age. The ground for Strawberries should be trenched and well manured unless already done. Good well-rooted runners being at command, leave the plants until they are starting into growth, and then transplant them with balls. They should be planted 2 feet apart each way. Strong-growing kinds, such as *President*, should have 2 feet 6 inches distance between the rows. We do not keep Strawberries on the same ground for more than three years. In light soils annual or at most biennial cropping is preferable.

It is not usual to protect the blossom of the Pear and Plum trees on walls, but it is very desirable to do so, as it may make all the difference between a full crop or a scant one should severe frost prevail. Canvas screens are not very expensive, and the fruit preserved by them would in many instances pay for their cost in a season. The netting employed for protecting fruit from birds is often when placed over the trees now of a double thickness effectual in protecting the blossom from frost; it possesses the advantage over canvas of not requiring to be removed daily in bright weather. There would be less blistered leaves and very little canker if the foliage were protected from the sudden and often severe cold of our spring months. Dry fronds of the *Bracken* are very suitable for sheltering the trees. They may be strung together with twine and be secured to the wall at intervals. Cherries on walls are also deserving of having the blossom protected, as also are espalier trees and pyramids of choice Apples and Pears. The protecting material should be in readiness for application by the time the blossoms show colour. Some material for protection will suggest itself corresponding to the means of the several cultivators, but protection of some kind must be afforded the trees when in bloom and the weather is severe.

FLOWER GARDEN AND PLEASURE GROUND.

Lawns having become brown and patchy should be well scratched with an iron rake, a little fine soil spread over the places, well raked again, and then sown with grass seeds and be well rolled. Those having plenty of grass but weak, and who object to a top-dressing of compost as before advised, or if such compost is not available, may apply equal quantities of soot and wood ashes to the lawn with much benefit, spreading on the mixture at the rate of a peck per square rod. Proceed with the pruning of *Roses*. In cold districts pruning should be deferred until next month. For a later bloom the pruning may be postponed until the middle of April in the south, and north of the Humber until the end of that month. We shall not give any directions for performing the operation after the sound and timely hints given by "WYLD SAVAGE" in a recent issue. Point-in manure, and remove any litter that has been used for protection.

Evergreen shrubs may now be pruned. Laurels, Portugal and common, especially the latter, become straggling and do not do so well as when well pruned. Both kinds may be cut hard in, and they will recover in a short time, forming much finer heads or bushes than when left to themselves. *Hollies* and *Yews* bear pruning well, as do *Laurustinuses* immediately after flowering. Symmetry of form should be the object aimed at—not the stiff formality of clipping and shearing, but assisting Nature by the removal of gross and irregular growths. *Rhododendrons* do not require much pruning, but irregularities should be removed, and if the shrubs are too large they may be cut-in closely. *Conifers* need very little pruning, but duplicate leaders should be removed, and any growths that are likely to disfigure the head should be

shortened. Roll walks frequently, turning the surface if full of small weeds, and applying a little fresh gravel.

Propagating Bedding Stock.—Attend to the increase of such plants as have been placed in heat to afford cuttings, and if there is likely to be a deficiency of plants from cuttings supplement them by sowing seeds. Seed of *Lobelia* should be sown at once in gentle heat to have good plants by planting-out time. Old plants placed in heat will afford a quantity of cuttings, which strike readily. Golden Feather may now be sown in cold frames placed in a warm situation, and better plants will be produced than those raised in heat. Golden Chickweed is also better increased from seed than by cuttings, both of which are easily raised in a cold frame. Various perennials, such as *Delphinium*, *Dianthus Heddewigii*, &c., flower the first year if the seed is sown early in gentle heat, pricking off the seedlings in due time and growing them on. Sow seeds of Ten-week Stock, Asters, Marigolds, and *Phlox Drummondii* in gentle heat for the principal summer display. All seedlings when large enough to be handled should be pricked out and be kept near the glass, and well ventilated so as to have the plants sturdy.

FRUIT HOUSES.

Pines.—The young roots, especially of vigorous plants, are tender and susceptible of injury from too much bottom heat; therefore the bed should be frequently examined, and suckers or young plants recently repotted should also be examined, and when roots appear at the sides of the pots a lessened bottom heat will suffice; for though 90° or a few degrees more may facilitate speedy root action, 85° is safer when the roots reach the sides of the pots. The pots should be raised if the temperature of the bed is excessive. The plants require to be regularly watered as they make roots rapidly, and they must not be allowed to become dry nor root-bound, or they will receive a serious check. In order to secure good results the plants must make steady progress; therefore have the material for potting in readiness, and shift the plants promptly when they are well rooted. Fruiting plants and those in or near flowering keep at 65° to 70° at night, 75° to 80° by day, with an advance from sun heat to 90°, closing at 85°, damping all available surfaces at the same time. Attend to the watering, &c., of succession, indeed to all plants, and the water should not be less in temperature than that in which the roots are.

Cherry House.—The trees are now in blossom. Syringing may be discontinued, but a light sprinkling in the early part of the day will be judicious in bright weather, also damping in the afternoon all available surfaces, for Cherries as well as Peaches, and particularly Plums, are not so susceptible of injury to the blossom from a light sprinkling overhead as by a close moist atmosphere. The borders must be well watered, particular care being had in that respect to trees in pots. Ventilate freely whenever the weather is favourable, and if artificial impregnation is resorted to let a bright day be chosen if possible for the operation. A little air should be left on constantly day and night at the top of the house. Keep the night temperature at 45° to 40° at night, 50° to 55° by day from fire heat, increasing the ventilation at 55°, having full air on at 65° and closing at 55°. Fumigation is the best remedy for aphids, but it must be done moderately or the foliage will be injured.

Strawberries.—It is a capital plan to have a house specially provided for the swelling-off of the fruit, which then attains a much higher quality than when it ripens on shelves in structures the inmates of which require treatment adverse to the swelling-off or ripening of Strawberries. In bright weather 80° to 85° should be a maximum, closing at the latter with a copious moisture obtained by sprinkling. La Grosse Sucrée has ripened fruit a week to ten days in advance of Vicomtesse Héricart de Thury, both having been started early in December. The last batch of plants should be placed in their fruiting quarters, or at least in frames, without delay, so that they may be making progress. Plants swelling the fruit assist with liquid manure, and to such as are to be placed on shelves remove a little of the surface soil and replace with fresh, seeing that the drainage is clear and the pots clean. It is well worth while to impregnate the flowers, it being expeditiously done with a good-sized camel's-hair brush. Aphids destroy by fumigation, and "spittle fly" by removing the insects beneath the froth. Red spider keep under by syringing the under side of the leaves, but this pest is not troublesome when the plants are well supplied with water or liquid manure, the plants being examined for the purpose twice a-day.

PLANT HOUSES.

Greenhouse.—Complete the necessary potting of all the hard-wooded plants as soon as possible, such as *Aphelexis*, *Acrophylum venosum*, *Chorozemas*, *Diosmas* or *Adenandras*, *Droophyllum gracile*, *Eriostemona*, *Eutaxias*, *Metrosideros*, &c., and as the sun is more powerful and March proverbially windy the admission of side air should be given cautiously, allowing a slightly higher temperature rather than admit drying currents of air, especially to plants recently repotted. Early-flowered *Cytisanes*, *Epacris*, and *Acacias* out of bloom should be cut-in, and if kept rather warmer they will soon break, and may then be repotted. They will flower early without much forcing. *Coronillas* may be treated in the same manner. Cuttings of *Monochaetums* should now be

inserted, selecting the young shoots when 2 or 3 inches in length, and placing the cutting pots in gentle bottom heat. *Libonia floribunda* may be treated in the same way, young plants grown on through the summer being more serviceable than old plants. Pot *Statice* and similar plants at once, not omitting *Witsenia corymbosa*, one of the finest of late summer-flowering plants, its fine blue flowers being very desirable. *Plumbago capensis* must have a light airy situation. Plants kept in small pots over the winter should be cut back, and when started into growth shifted into pots 1 to 2 inches larger, 6 to 8-inch pots being quite large enough for decorative purposes. *Agapanthus umbellatus* afford a light situation, and if additional stock be wanted divide the old plants. Any plants in small pots shift into larger; the sky-blue flowers are very useful. *Imantophyllums* assist with weak liquid manure, and *Richardias* likewise. They are gross feeders, and amply repay by the increased size of the spathes for any extra nourishment. Repot *Lapagerias* and other climbing plants grown in pots.

Increase and Propagation of Plants.—Pot a good batch of tuberous-rooted *Begonias*, and disroot and repot such sorts as *B. Dregei* (*parvifolia*) and *Weltoniensis*, and place them in gentle heat. *Gloxinias* and *Achimenes* should also be forwarded in gentle heat, such as that afforded by a hotbed; they are very serviceable for a greenhouse in summer. Insert cuttings of Tree *Carnations* in sandy loam, and place the pots in gentle heat. The cuttings speedily emit roots, and the plants should then be hardened-off, potted, and placed outdoors in summer. *La Belle*, *Miss Joliffe*, *Princess Christian*, *Princess Beatrice*, *Marchioness of Westminster*, *Rose Perfection*, *Queen of the Belgians*, *Scarlet Defiance*, *Empress of Germany*, *Zouave*, *Monsieur Baldwin*, and *Prince of Orange* (*Picotee*), are a select dozen. Pot-off early-struck double *Petunias*, inserting more cuttings; and cuttings of Zonal *Pelargoniums* may be inserted now to afford plants for flowering in autumn and winter. Pot and grow-on for summer bloom such plants as have been wintered in small pots, affording weak liquid manure to those advancing for bloom, and do not neglect the stopping and regulating of the shoots when they require it. Also pot and grow-on *Pelargoniums* cultivated for their foliage, and do not omit the scented sorts, such as *odoratissimum*, *denticulatum*, *capitatum major*, &c. Insert cuttings of *Bouvardias* and *Abutilon* *Boule de Nieve*, placing them in gentle heat, and grow the plants on for winter flowering; also cuttings of *Fuchsias* for late bloom. Keep Show *Pelargoniums* near the glass, tying and regulating the shoots, feeding the plants with liquid manure unless they are very robust, shifting into larger pots those for late bloom, also *Calceolarias*. Sow *Mignonette* in gentle heat for affording plants for growing in pots. *Reseda odorata* *Queen Victoria* is a fine variety. *Primula sinensis* vars. sow in heat for autumn flowering, also *Balsams* and other tender annuals for the decoration of this structure at a later period. Pot-off *Chrysanthemums*; those already potted-off and which have filled the pot with roots shift into larger pots, stopping the growths when about 4 to 6 inches high if specimen plants are required, and keeping them in a cold frame and well ventilated. Cuttings may yet be inserted; they strike quickly in gentle heat. *Echeveria retusa* is one of the best succulents for winter flowering; cuttings root freely kept rather dry either with or without heat. Repot *Hydrangeas*, and place a portion of the plants in gentle heat for early flowering. *H. hortensis*, *H. Thomas Hogg*, *H. stellata* *flore-pleno* are good, the latter being very useful for furnishing; *H. paniculata grandiflora* having fine heads of creamy-white flowers. Syringe any plants infested with red spider, such as *Chorozemas*, *Pimeleas*, *Eutaxias*, &c. Fumigate with tobacco upon the first appearance of aphids or thrips, and remove brown and white scale with an approved insecticide. Pot more Musk and place in gentle heat.

Conservatory.—This structure will now be at its gayest. Any plants at all "seedy" looking should be removed and replaced by others from the forcing pit. Continue to introduce to the forcing pit *Ghent Azaleas*, *mollis* var., *indica* var., *Rhododendrons*, *Kalmias*, *Lilacs*, *Laburnums*, *Hawthorns*, *Viburnums*, *Prunuses*, *Deutzias*, *Spiræas* *Thunbergi*, *arizifolia*, and *callosa alba*, *Clematises*, *Weigelas*, &c., *Lily of the Valley*, *Dielytras*, *Spiræas* *palmata*, *venusta*, *filipendula*, *Ulmaria*, and *japonica*, with such bulbs as it may be desirable to forward. A good batch of *Liliums* should be forwarded in heat, especially *L. longiflorum* and *L. auratum*. The retubbing of such plants as require it should be seen to at once, and all plants in borders to be supplied with water according to their requirements, attending to top-dressing, &c. Tree Ferns will be starting into growth and require very copious supplies of water. *Camellias* as they go out of bloom should be top-dressed. We use old dry cow dung, removing a little of the surface soil. This treatment answers well also for the Orange family, promoting surface roots. Orange trees are subject to attacks of scale; there is no remedy but frequent sponging of the leaves on both surfaces with soapy solutions. *Camellias* may be cleansed in a similar manner, but the sponging must be done before the plants commence growth or the tender young shoots will be damaged. Many plants, such as *Oleanders*, *Acacias*, *Lapagerias*, *Palms*, &c., are liable to white scale, which may be cleared with 1 lb. of soft soap to a gallon of water, adding a quarter pint

of spirits of turpentine, applying with a brush and syringing immediately afterwards.

TRADE CATALOGUES RECEIVED.

James Carter & Co., High Holborn, London, E.C.—*Illustrated Catalogue of Prize Farm Seeds.*

R. Edwards & Sons, Nuthall, Nottingham.—*Catalogue of Dahlias.*
Samuel Hawley & Co., Forest Gate, London.—*List of Garden Manures and Horticultural Requisites.*

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

BOOKS (*W. Henshaw*).—The book you refer to has been out of print for years, but we can procure you a copy. (C. A.).—Thomson on the Culture of the Vine.

GREEN ROSE (*E. E.*).—We do not know the origin or history of the Rose. It is very rare. The name is *Rosa viridiflora*, and the green colour of the petals is perfectly natural.

PROPAGATING AZALEA MOLLISS (*A Liverpool Subscriber*).—It is propagated in the nurseries by seed, layers, and grafting. Raising seedlings is a slow process, and not likely to be satisfactory in your case. Layering is effected by having the plants planted out, the branches being notched or twisted, and pegged into the ground in March. Plants are also increased by grafting on healthy stocks of *A. pontica*, the stocks being potted and side-grafted in March, and kept in a close temperature until the union is complete. Usually the most satisfactory mode is to obtain plants from the nurseries. When they are purchased in a small state they are not costly.

WHITE AZALEAS FOR FORCING (*J. Wallace*).—*Virginalis*, pure white; *Souvenir de l'Universelle*, white, striped with rose; *Purity*; *Princess Alice*, pure white, flowers of fine form; *Mademoiselle Léonie Van Houtte*, white, striped with rose; *Beauty of Dorking*, white, spotted with carmine; *Flag of Truce*, pure white flowers, large and double; and *A. Borris*, double white.

CULTURE OF PITCHER-PLANTS (*Puddy Carey*).—Now is the time to examine your Pitcher-plants to report them if necessary—that is to say, if the roots are found to have taken hold of all the soil given them in the last potting a little more will now be required in order to keep them in full vigour, taking especial care to avoid overpotting. See that the drainage is right. It should fill quite a fourth of the pot. The roots revel in a mixture of two parts sphagnum with one of very fibrous peat, having all the finer particles sifted out of it, and with a sprinkling of pieces of charcoal the size of a filbert. Pot firmly, and prune any long shoots for the sake of uniformity, but no regular systematic pruning is necessary after the plants are once furnished; otherwise, if they are of straggling habit they may be cut down nearly as closely as *Geraniums* are cut to promote a greater number of growths, and consequently pitchers. Pruning must only be done when the plants are in a thoroughly healthy state, the present being a suitable time for the operation. Keep the plants in a very high and moist atmosphere, and shade them from the sun.

PLANTS FOR A GRAVE (*J. H. Glasgow*).—This is a subject which scarcely admits of advice; the tenant of the grave, the relations, the burial ground, ought to influence the selection. We know a sod-covered grave where, the grass being very small-leaved, *Snowdrops* are planted for winter; these are followed sometimes by *Hyacinths*, and for the summer a few *Ferns* are used. Thus in the summer months flowers are altogether discarded, and nothing but the *Ferns* are seen, and the effect is at once quiet and graceful. For an ordinary grave the sexton is requested to leave the mound a little less than the usual size, and the remainder of the space is occupied by *Snowdrops* and *Ferns*. In addition to the appropriateness and good taste of this style of grave decoration, it possesses the advantage of requiring the very least of attendance. Both the *Snowdrops* and the *Ferns* will last for many years, and all that is required is an occasional cutting of the grass on the mound and the keeping the other parts free from weeds.

GARDENIAS SHEDDING THEIR FLOWER BUDS (*Constant Reader*).—The temperature you give would suffice for the Chinese and Cape species, but it would be much too low for such as *Devoniana*, *Stanleyana*, and kindred kinds, which should now be in an Orchid house to be flowered to perfection, or, what is equally good, plunged in the bed of a Pine stove. Besides unsuitable temperature, bud-shedding may arise from excessive drought or overwatering, or a sudden removal from a cold pit into a brisk heat. We should only pinch the gross-growing shoots, and should increase the temperature gradually.

HYACINTHS AFTER FLOWERING (*Various*).—The bulbs are only good for border culture after they have been grown in pots or glasses—that is, they will not produce such fine spikes as those produced the first year after the bulbs were imported. Yet with judicious management the bulbs grown in pots will produce useful spikes for cutting another year, and for this purpose we grow three to five bulbs in a 5-inch pot, or several bulbs in a pan. As soon as the flowers fade the spike should be cut off and the plants be placed in a light frame, and be watered as carefully as before they flowered, giving them weak liquid manure occasionally to promote a good growth of foliage. This must be kept green as long as possible, and must be ripened off in the full sun. After the plants have been in the frame for a time they may be planted when the weather is mild in light soil on a warm sunny border. After the bulbs have flowered in glasses we have found it a good plan to empty the water out of the glasses and fill them at once with leaf soil, working it well amongst the roots and keeping it moist, the plants being placed in a frame, treated the same as those grown in pots, and afterwards planted out. The bulbs may remain in the ground until August, or permanently if

they are not wanted for pot culture a second year. Those planted out and covered with a glazed frame always give us a valuable supply of cut flowers.

HERRACEOUS PLANTS TO FLOWER IN JULY (*Midland Counties*).—*Campanula macrantha*, *C. pyramidalis alba*, *Delphinium Belladonna*, *D. Madame Henri Jacotot*, *Eupatorium angustifolium album*, *Eupatorium cannabinum*, *Galega officinalis alba*, *Geum coccineum grandiflorum*, *Helianthus multiflorus flore-pleno*, *Lathyrus grandiflorus Frederic splendens*, *L. latifolius albus*, *Lychnis Chalcodonica flore-pleno*, *Lobelia fulgens St. Clair*, *Enothera macrocarpa*, *Polygonum undulatum*, *Saxifraga longifolia*, *Spigelia marilandica*, *Spiraea Ulmaria foliis variegatis*, *S. palmata*, *S. venusta*, *Verbena venosa*, *Phlox decussata* vars. To have the required twenty it will be necessary to have more variety, and have duplicates or more of those required; indeed, we should not think of exhibiting twenty plants or cut flowers without having an extensive collection to select from.

PLANTING VINES (*E. H. Lichtfeld*).—Presuming that you do not intend forcing the Vines early, we think in the case of a house constructed as yours is that outside planting would be the most satisfactory. There would be danger of the roots becoming too dry in the narrow, elevated, inside border. Drain the border well and see that superfluous water can pass away freely, and plant the Vines outside, wrapping the rods with haybands between the soil and the apertures by which they are introduced to the house. If the Vines were under an experienced cultivator and ripe fruit was required in May we should plant inside.

SOIL FOR A VINE BORDER (*J. D.*).—Soil that will grow good vegetables will grow good Grapes; if you have such, use it. Avoid soil from a wood, as likely to contain the spores of fungi which prove hurtful to Vine roots. If the soil at your disposal is poor enrich it by mixing with every five cart-loads one load of mortar rubbish, one of wood ashes (to be had from a baker), one of old well-decayed dung, and 3 cwt. of crushed bones. Twenty feet is the width of a first-class Vine border, but it need not be more than half that width for the first three or four years. Black Hamburg is the best Grape for general purposes, and your house 30 feet long will require six Vines.

PLACING STRAWBERRIES IN POTS IN SAUCERS (*C. E.*).—It is not desirable to place the pots in saucers half filled with manure, and that in a fresh state. Fowls' dung is a powerful fertiliser and should not be used for such a purpose, even if sand has been mixed with it for a year. We find better results without saucers, the plants being watered with liquid manure after the fruit is set and swelling freely until it changes colour for ripening. One peck of fowls' dung to thirty gallons of water forms a good liquid manure. We know of no means of rendering fresh dung fit for immediate use for mixing with soil for potting except by drying it over a fire or other heated surface, though much may be done by mixing with very dry soil. A very moderate quantity of fowls' dung should be mixed with the soil for potting plants, not more for gross feeders than a tenth. To burn the fresh dung would destroy its organic value.

TRANSPLANTING RASPBERRIES (*A Cheshire Subscriber*).—If it is only a question of removing canes from one part of a garden to another, so that there is no danger of the fibrous roots becoming dry by exposure to the air, we should not hesitate to transplant the canes now. We should, however, not dig up the entire plantation, but should only thin out the canes and plant such as have an abundance of fibrous roots near the surface, leaving the others for another year to prevent a blank in the fruit supply. The canes removed should be shortened to within about a foot from the surface of the soil, which will promote the growth of stronger canes for fruiting next year.

PLANTING POTATOES (*G. S.*).—A dressing of lime alone is insufficient; supplement it with a heavy dressing of your stable manure immediately, then when the soil is in working order draw drills 30 inches apart and place the sets a foot apart in the rows, drawing the soil over the Potatoes with a Canterbury hoe, covering them 4 inches deep. When the young shoots become visible above the surface pass a hoe through the surface of the ground to destroy weeds, stir the soil between the rows with a light steel fork, and at the same time earth-up the Potatoes with the fork, thus leaving the soil clean, light, and open to the action of the air, inducing a strong rapid growth, and avoiding any further trouble with weeds, as the haulm soon meets and keeps them down. Have nothing to do with steeping in petroleum. Choose good well-ripened seed of fair size, plant it in soil that is well stirred and enriched with manure. Keep down weeds, and stir and earth-up before the growth is much advanced. Lift the crop as soon as it arrives at maturity, and with favourable weather you will probably be more successful than if you attempt any more elaborate process of culture.

DRAWING DRILLS FOR PEAS (*An Amateur*).—In gardening practice we do not know of a better implement for drawing the drills than the hoe. There are implements for drawing drills for such small seeds as Carrots and Onions; but even in the case of those crops, and when the land to be sown is of comparatively limited extent, we prefer the corner of the hoe for forming the drills, these being drawn by the side of the garden line tightly stretched.

NITRATE OF SODA (*A Constant Reader*).—It is popularly known as cubic nitre or cubic petre. One pound to 30 square yards of land is a sufficient quantity as a manure. Plants probably decompose it. In the above quantity it has been found beneficial to Carrots, Cabbages, lawns, and Potatoes. Dissolved in water, 1 lb. to twelve gallons, it has been used with advantage as a liquid manure to Lettuces, Celery, Chrysanthemums, Dahlias, Fuchsias, Carnations, and Pinks.

BLASTING TREE STUMPS.—"A Forester" writes in answer to "Puddle" that he has blasted many roots by the old method of boring a hole in the stump with an inch wimble, the hole reaching as near to the centre of the root as possible, filling the hole with coarse blasting powder to within 3 inches of the top, and filling to the surface with moist clay hammered very firmly. The powder is also pressed very firmly with a hard wooden rammer. Previous to placing in the clay one end of a fuse is inserted in the powder, the other passing through the clay for the purpose of being lighted. If shelter is near the fuse need only be short, but if the roots are in the open the fuse must be longer, so that when lighted it does not ignite the powder before the operator has retreated to a safe distance from the point of explosion. A little experiment as to the time a given length of fuse will burn will suggest the length required for any particular site or operation. Our correspondent states that he has blasted roots very successfully by that plan, and has never met with or seen an accident occur to those engaged in the work.

LIME DRESSINGS FOR GARDENS (*South Hants*).—Much caution is required in the use of gas lime, and we should mix it with a heap of garden refuse, and turn the heap over a few times before applying it to garden crops;

then given in moderation it would do good. Pure lime, on the contrary, may be applied unmixed at the rate of eighty bushels per statute acre on light soils, and from a hundred to two hundred bushels on medium and heavy soils. As much as three hundred bushels have been used with benefit upon very heavy wet soils.

HEATING APPARATUS FOR A GREENHOUSE (*Idem*).—A hot-water boiler and iron piping is best.

HEATING CONSERVATORY (*Mrs. Ashley Maude*).—A conservatory 21 feet by 13 feet and 15 feet in height cannot be heated satisfactorily by an oil stove. Two such stoves would not mend matters, being alike inefficient and very expensive. A slow-combustion boiler would probably answer, having two rows of 3-inch pipes all around the house excepting the doorways. We should have a stokehole outside and heat with a flued saddle boiler and 4-inch pipes, two rows up the pathway all round the house in an open flue, covered with ornamental iron grating, or four rows of piping if the path only extends the length of the house. A rough plan would have enabled us to be more explicit.

PETROLEUM STOVE (*Inquirer*).—We have seen testimonials in favour of that manufactured by Messrs. Dick Radcliffe & Co.

GREEN FLY ON GOOSEBERRIES (*E. Richardson*).—Syringe the Gooseberry bushes with a solution of Gishurst compound in the proportion of 3 ozs. to the gallon of soft water.

NAMES OF PLANTS (*T. B. D.*).—*Amaryllis blanda*, or Blush Lily, found by Sir Joseph Banks at the Cape of Good Hope. (*W. G.*).—The specimens are insufficient. You can send anything under an ounce weight for a penny. Send us better specimens and in bloom. (*Jean*).—1, *Santolina Chamaecyparissias*; 2, *Picaria ranunculoides*; 3, *Anemone appennina*; 4, *Omphalodes verna*. (*J. S. E.*).—*Eriostemon baxifolius*. (*O. H. C.*).—*Maxillaria picta*.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

THE CULTIVATION OF OATS.

We will write about the oat as lent corn, and postpone our observations relating to the winter oat until a future time.

The oat crop is commonly considered of less importance than any of the cereals, and is often put in anyhow or anywhere without much preparation or manure; but we have found it pay as well or better than other cereals, particularly upon heavy land or on the mixed soils, and in cold and exposed climates like Scotland, Wales, and various parts of the northern and north-western districts of England; and after an untoward season for wheat, like the past winter, seeding in proper time and condition has in some districts been impossible, and much heavy and difficult land for tillage has been left over unsown. In such cases the oat crop offers an eligible substitute for the wheat crop, as we have often found on land in good condition that as many quarters of oats per acre can be obtained as of sacks of wheat, and therefore at the relative value of each kind of grain the acreable produce will be nearly equal in money value. Oats are generally sown upon the chalk hill farms after saintfoin or clover lea, and also upon various soils, particularly the mixed loams, after a root crop. When sown out of lea the land should be ploughed and pressed early in the spring, in order that it may settle down firm, otherwise the wireworm often causes serious injury; but it is a safe plan when oats are sown out of lea to sow about 3 cwt. per acre of rape cake, which is a good manure for the oats, and at the same time it has the effect of attracting the wireworms. When oats are sown in good ground after turnips they are often mixed with barley in order to secure a regular plant, and also to increase the crop, which it does by about 6 or 8 bushels per acre; at the same time it is the best security against the depredations of the wireworm, because when the mixed grain is sown we have never known them eat both kinds, and we are pretty sure to obtain a plant of either one or the other when 2½ bushels of Tartarian oats and 1 bushel of barley are sown per acre. It is a common practice to sow oats very early, but we prefer to wait for a favourable season instead of sowing so early as to disregard the state of the land. Many say, "Oh! that will do for oats," but we have found that they grow slowly in such cases, and often lose plants in consequence, whereas when sown about the middle of March they come up and usually (particularly the early white sorts) go on well until harvest without a check.

We will now refer to the sorts of oat most in use. First and in general cultivation is the black Tartarian. The white Tartarian suits some soils. The early white varieties most in esteem are white Canadian and white Poland. Later sorts are white Water-

loo, also the French copper-coloured. Taking first the black Tartarian, and especially the pedigree stock raised by Major Hallett, we must say for general purposes they are about the best for land in general. They are selling at rather more money than the ordinary samples, but being pedigree stock it is not more expensive to seed an acre of land, because a bushel of seed less will suffice. The white Tartarian oat is a very heavy cropper, and used to be very long and light in the samples, but within the past few years we have noticed that by selection the samples have been much improved. This sort is much in favour for feeding cab and carriage horses, as many proprietors state that weight for weight they are the best oat they get. These oats are late to harvest, but the straw is much relished by cattle, and we have found it excellent fodder for fattening bullocks. It is also a good plan to mix barley with this sort. We have always in our own occupation been in favour of the white Canadian and white Poland oats, ours being a forward climate and loamy mixed soil. We often grow them before the turnip crop, and have often grown 9 or 10 quarters per acre weighing 46 to 48 lbs. per bushel, according to the season, but they require to be cut very early and whilst comparatively green, otherwise they soon shake out with the wind and much loss ensues. The early harvesting, too, is very beneficial to the straw, we having used it instead of hay for many years for cattle and horses in chaff with great advantage, and the value of green straw is capably illustrated by the excellent article by Dr. Voelcker, whose analysis of oat straw gives a very nutritious return, and which we find coincides entirely with our own practice for many years. We grow the early oats in preference to making a fallow for turnips, and our plan is to cut and tie into sheaves and set up the produce in stooks upon one-third of the land, and as fast as the oats are cut we proceed to plough between the lines of stooks, work down, and drill turnips every day as fast as the corn is out; the one-horse drill acts well in such a case when two-thirds of the ground are drilled before the oats are carted. When the turnips are sown the same day that the land is ploughed the seed is sure to vegetate, as all the moisture in the land is available in the driest of weather. We generally find these oats fit to cut about the 15th or 20th of July, and we usually secure a good crop of turnips by drilling about 1 cwt. of guano and 8 cwt. of bone superphosphate per acre, and the plant is much surer to take after a corn crop than after a fallow preparation, as they do not suffer from wireworm and grub. These oats we often sow after potatoes, which crop entirely rids the land of wireworm. For many years before we grew potatoes to any great extent we used to be troubled with wireworm, and found it very difficult to obtain a regular plant of lent corn or turnips either. The potatoes, however, when removed carry away the wireworms also, as they bury themselves just under the skin of the tubers, and we have never seen any damage to crops from this cause since we have made potatoes a part of our rotation of crops. The white Waterloo and French copper-coloured sorts are generally grown upon kind dry soils, and especially for late sowing. We have seen very fine crops grown on chalk, sand, and gravel soils, where the climate is mild and the aspect south or south-west. The later varieties of oats, such as the white Tartarian and French, can remain uncut until a much later period without serious loss by shedding of the grain, and for this reason they are sometimes selected for growth on exposed hillsides at a high altitude and situations which suffer from wind off the sea coast. The cutting and harvesting of oats is often thought of little consequence, and they are cut and left lying on the ground for a long time under ordinary management; but since straw has now attained a value little short of hay for feeding purposes more pains and trouble is taken with the crop, and to have the straw in the best feeding condition it should be cut and tied into sheaves of moderate size, and about 12 or 15 inches through at the bond, and in this way oats may be cut much greener, because there is little fear of loss of grain, as is often the case when harvested as loose corn, particularly when the crop has been lying on the earth for a considerable time, and in showery seasons sprouted grain is sometimes found amongst the samples harvested as loose corn, whereas when tied

and set-up in stooks of about twenty sheaves in each it is very rare that the grain is injured, nor can the straw be damaged and discoloured when the sheaves are looked to and kept set-up. Loose corn is, however, in a fine time not without its advantages, because it will be fit to carry to rick several days earlier than when tied into sheaves. The cost of tying the crop will be greater than forking and raking a loose crop, but the expense of carting will be much less, and since ricks are now usually made in the fields where grown the sheaved oats can be got into stack not only at little expense but in a very short time, which is of consequence in a catching harvest. There is one matter requiring particular attention, because when the crop is tied into sheaves they are very liable to heat in the stack, for it is a fact that no corn is so liable to heat, especially where clover is found amongst the crop; and as it is usual to sow clover seeds with this crop care must be observed in order that the clover may have sufficient time to become quite dry before carting, for although when heating in rick occurs if it arises from greenness only it will not injure the straw as fodder, but it will come for use like the American oat hay, yet the grain will be injured, and cannot be used as seed corn, the vegetating power being destroyed.

WORK ON THE HOME FARM.

Horse Labour.—Ploughing for the various crops will still be going on, drilling also and harrowing-in the seed at every opportunity when the weather is favourable of beans, peas, oats, barley, &c. Rolling the clover seeds and meadow land must be attended to, but it may be done after rain when the arable land is too wet for the ordinary tillage it requires. The odd horse will likewise find constant employment in fetching and carrying the commodities which now form the chief food of the animals on the farm, such as roots for the dairy cows and pigs, hay and roots for the horses, and hay and cake for the sheep; and where there is a milking dairy and the produce sold as milk, on the return of the light van which takes the milk to town or station many items required may be brought home as back carriage, such as grains for the cows and pigs, cake for the sheep and fattening bullocks, also manures of the kinds required may be fetched from the station, so that with a proper vehicle employed it need not be charged entirely to the milk trade, but will always be found useful in otherwise saving labour.

Hand Labour will now be required in many ways at once; for instance, on the mixed soils it is seldom that the land where the turnips and swedes are being fed-off is quite clean and free from couch grass; and we find it a good plan to have the lumps or bunches forked out before the sheep, as it cannot be seen after the sheep have gone over the land and trodden the ground. We often employ both men and women, but it is light work and suits female labour very well, and they, when accustomed to outdoor work, will do as much at it as men. The Swedish turnips now begin to find of the time of year, and are fast running up to green stalks. To stop them is important at the exact time, otherwise the quality of the roots is depreciated, and when near to towns the greens are a ready sale if not wanted on the farm; and the method of topping the roots must depend upon when and for what purpose the roots will be required. If a good stock of sheep are on the farm which require all, both bulbs and tops, they may be only cut down in the ordinary way by mowing. If, however, there is plenty of food for the sheep the greens may be cut and sold to the market men who attend the towns. We have sometimes made from 20s. to 30s. per acre of them; but should the swedes be required for a late period they may be so managed as to prove good food for sheep and allowed to remain in the land as they grew through the months of May and June, for on various occasions we have not finished feeding with the sheep until after midsummer. Our plan is to pull a road for the carts to enter the field across in various directions for the purpose of carrying away the greens. We adopt the method of what we call crowding down the bulbs, which is cutting the stalks off close to the crown where the rim is formed by the fall of the first leaves. The time to do this is just as the seed buds form a head about the size of a shilling or pennypiece, and this work is done by women, who use a fagging hook, giving each bulb a separate cut, and when cut close down on the crown it is a long time before any young shoots come at all, the buds being cut away, so that if they make any shoot at all it has to be formed on the clean smooth surface of the bulb. The roots bleed a little sap, but not enough to injure their value for feeding or to rot them, and we have had them in excellent feeding condition on many occasions until all our field hay has been made and ricked, and thereby saved large quantities of hay, which must have otherwise been fed as grass, to continue a heavy stock of sheep during the months of May and June. When the roots are fed late in this way we have grown capital white Belgian carrots by one ploughing and sown any time before the 20th of May. The portion of fields fed later does well to be seeded with vetches and oats or tall rape mixed. This plan, however, of feeding on the land to a late period is not so much approved as it has been, because the cultivation and preservation of mangel is better understood, and mangel now forms the staple root food of

the farm during the summer months to supplement grass, &c., for sheep and dairy cows, for which purpose it is admirably adapted, particularly the Golden Tankard variety sold by Sutton of Reading.

PRICKLY COMFREY.

My management is first to plough the ground as deeply as possible, a good dressing of dung being put on previous to ploughing; the land is then harrowed to make it even. We then dig good-sized holes 2 feet 6 inches apart. The land is poor, or we should dig the holes 3 feet apart over the entire piece intended to be planted. We then place two shovelfuls of dung in each hole, and mix a little fine soil with it, stirring the whole together and filling up the holes again. The dung makes the stations appear like little mounds. We then dib in the cuttings or eyes, as may be, one in each mound. When the plants show leaf we give a top-dressing of guano, superphosphate, and dissolved bones at the rate of 1½ cwt. per acre, and have the ground then hoed over to clean it from weeds. After the second cutting another dressing of guano will assist the autumn cutting. In fact, Comfrey cannot be over-manured any more than can rhubarb; each will take any amount of manure, and may have as much liquid manure as can be given. I should not advise your correspondent (see page 195) to rake his manure off the land, but to point it in with a fork. We always manure our Comfrey ground heavily in the winter, and fork the manure in during this month (March). Prickly Comfrey must be fed well and grown quickly, for, like a cucumber, if grown slow it is very bitter, and will even impart to the milk an unpleasant taste.—W. MOWBRAY.

I PLANTED a field of Prickly Comfrey last year, and according to advice it was not cut at all. It is now beginning to shoot well, but has large clusters of last year's decayed leaves attached all round the stem or root. Should these be removed or not, and should the crowns be manured round?—G. M.

[It will be necessary to carefully remove the old dead leaves of last year's growth. As, however, the young shoots now begin to appear it should be done with care, as the new buds are exceedingly tender. The old dried leaves if allowed to remain are certainly an impediment and injurious to the coming produce; and this being a most valuable production for cattle food, it will well repay the grower for properly attending to the plants at all times, and especially by manuring without stint; and at this time of year either Peruvian guano or nitrate of soda and mineral superphosphate may be applied round the plants, and just forked or raked-in with care.]

MANAGEMENT OF POULTRY IN SPRING.

THERE is no time of year during which careful management of poultry, whether bred for exhibition or use, is more necessary than the present. It is a season of cold winds, hot suns, and sudden changes of temperature; and though we have hitherto been favoured with a genial old-fashioned spring, who knows that east winds and snow showers may not yet be in store for us and for our chickens? Many people are enthusiastic about their poultry by fits and starts. They go to the great autumn shows, are filled with admiration of the prize birds, buy one or two fine specimens and send them home, and perhaps look at them daily in their new quarters for a week or two; then interest flags, and the birds are left to the care of some servant who has plenty of other things to attend to, and consequently the birds are pretty much left to take care of themselves. A certain amount of energy, perhaps, revives in their owners upon the arrival of the first brood of chickens; but it is transient, and little trouble is taken with the poultry yard till the next exhibition season, and then there is wonderment and disgust if splendid chickens do not appear both in the show pen and on the table. With the true fancier the early spring, far from being an idle time, is the working season. The management of the breeding stock as well as of their young produce is now all-important, and we will therefore give some results of our experience in both.

Many people seem to think that so long as a pen of birds are good in points, and exist in some sort of condition so that the hens lay eggs, an equally good race of descendants must follow. We need hardly tell any of our readers that this is a great mistake. The development and constitution of the future chickens depend in the first instance on the condition of the parents when the eggs are laid. We were much struck the other day by a letter of Mr. James Long's in a contemporary, in which he pointed out the great necessity of keeping the male birds in good condition during the breeding season, and limiting them to a small number of hens. We have always found the great difficulty in managing breeding stock at this time of year to be that the hens are apt to get too fat, while the cocks, if not specially fed and looked after, will often become emaciated. The fact is, the moult of a cock is a much longer and more exhausting process than that of a hen. We have often known a hen begin laying again in five weeks, having moulted in the interval; but cocks generally take three

months to recover their long hackle and tail feathers; then, perhaps, a sickle is lost by accident and again replaced; the result is that the bird comes out of the moult in an exhausted state, and takes a long time completely to recover. Hens, on the other hand, soon begin laying on flesh; if young they probably lay through the winter, and this keeps them from becoming unduly fat, but old hens often have an interval of three or four months between the moult and commencement of laying, and in the meanwhile become positively obese. The best way is to ascertain their condition by frequently handling them on the perch. Judiciously starve any over-fat birds by shutting them up on prison diet for a few days; and, on the other hand, if the cocks show consumptive tendencies take every opportunity of giving them little private luncheons of delicacies and scraps. They should learn to eat out of their attendant's hand, and so be easily fed apart from the hens. Again, warmth derived from sun is even more necessary to sprightliness and vigour than that obtained by food. Always try to have in a poultry run some wall or hedge under which the birds can sun themselves, protected from the north and east winds; if this cannot be, a little peat or turf bank is a good substitute, or even a hole dug in the ground with the excavated soil thrown up on one side. As a rule we allow them about four hens to one cock in the early spring, but if they are old birds and their quarters cold or confined we should advise that the numbers be reduced to two; indeed, we have this season one or two famous old birds with only a single pullet, to make sure of a vigorous progeny. It is not that the eggs will necessarily be unfertile if more hens are allowed them, but the produce will have no constitution, and will succumb to the first check or chill. So closely do they follow the condition of their parents, that once when we had a poultry servant who greatly overfed the breeding stock, the chickens were all hatched in a state which we should call in the old birds "down behind." They had no power of digestion, and scores died under a week old. Many eggs, too, from birds in soft or poor condition duly develop up to a certain point and then fail. We examine them before a candle after six days or so of incubation and find all going on well, but between that time and the date for hatching vitality fails in the embryo, and they become "addled."

So much for the management of breeding stock. We will now pass on to the chickens. Our readers ought by this time to have their broods coming off in rapid succession—that is, if they are ambitious of seeing spring chickens on the table or of winning prizes at the early chicken shows; indeed, if they keep the Asiatic varieties, which take so long to reach maturity, they must have early chickens if they are to win at all this year. We do not ourselves go in much for very early broods, being chiefly content with later chickens, which are in the end the strongest and finest specimens. However, all should by this time be preparing for young stock. It has been usual in directions for the management of newly-hatched broods to read a list of dainties—boiled eggs, peppered potatoes, curds, and custards, on which they are to be fed in their early days, until promoted to the more ordinary diet of meal and grain. All this pampering we consider, as a rule, wrong; it does not so much do harm at the time, as make it difficult to wean the chicks from those delicacies to their permanent fare. If the change takes place gradually, and the one food is mixed with the other, the little creatures soon find it out and pick it out, leaving the plainer stuff; or if the latter is at once entirely substituted they often refuse it altogether, and pine in consequence. Whatever is to be their staple food, with that they should begin at once; a few tempting morsels may be given in addition, but only now and then, and as a treat. We have found oatmeal and ground oats—i.e., the whole oat ground to meal—by far the best food for general use; this we have boiled or scalded, and sufficient Indian corn meal or barley meal added to make a light crumbly mixture. Chickens will never refuse this if only as much is given at one time as they require, and none left about to turn sour and disgust them. Bread and milk, too, we give occasionally; it should be boiled, and then there is little fear of it giving them diarrhoea; but they must not have more than one meal a-day of it. Weakness of bone is certainly an increasing failing in the larger and heavier breeds. Cockerels are more liable to it than pullets. To what cause it is chiefly attributable we are not prepared to say, probably to a combination of several causes; among them high breeding, an erroneous selection of breeding stock with large bones, which are by no means the same thing as strong bones; and over-stimulating diet, which makes chickens literally outgrow their strength. We have always found it follow feeding on meat or patent meals containing meat. We had long thought this its chief cause, and were confirmed in our opinion last autumn when visiting Lady Gwydyr's yards by hearing from Mr. Wragg, quite independently of any suggestion of our own, that such was his experience. The acknowledged weakness of the teeth of the present generation of Englishmen has been by many eminent dentists attributed to the greater quantity of meat which we eat than our forefathers did. It seems not unlikely that a like diet may have a like effect in weakening the bones of animals or birds. We advise as far as possible a farinaceous and vegetable diet for chickens, save in very inclement weather, when the supply of mixed food entirely

fails. Old mortar should be handy, and we have always been used to have eggshells pounded up and added to the food, according to the advice of that great and practical authority Mrs. Arbuthnot. These hints should enable the fancier to have good hatches and to carry his broods safely through their early days, and we hope to give further advice about the management of the young stock as the season advances.—C.

DEATH OF MR. C. W. JOHNSON, F.R.S.

WE have sorrowfully to record the death of Mr. Cuthbert W. Johnson, F.R.S., so long and so well known as a writer on agricultural subjects. He died at his residence, Waldronhyrst, near Croydon, on the 8th inst., in the seventy-ninth year of his age.

Mr. Johnson was the eldest surviving son of William Johnson, Esq., of Widmore House, Bromley, in Kent, where he was born on the 28th September, 1799. He was also the brother of one of the Editors of this journal, and was a barrister by profession, but he devoted himself so closely to the science and practice of agriculture that he at an early period became widely known as a reliable agricultural writer. In 1820 he published an "Essay on the Uses of Salt for Agricultural Purposes," and this was followed by "The Advantages of Railways to Agriculture" (1837), "On Liquid Manures" (1837), "On Fertilisers" (1839), "The Objects and History of the Thames Improvement Company" (1839), "On Gypsum as a Fertiliser" (1840), "On Saltpetre and Nitrate of Soda as Fertilisers" (1840), "On Increasing the Depths of Soils" (1840). In 1841, conjointly with Mr. Shaw, he began "The Farmers' Almanac," which was the first periodical of that kind, and which has existed uninterruptedly up to the present time. In 1842 he undertook "The Farmers' Encyclopædia," an extensive work of 1820 pages. Then followed "The Farmers' Medical Dictionary" (1845), "The English Rural Spelling Book" (1846), "Our House and Garden" (1867). Besides these there were "A Calendar for Young Farmers," "The Modern Dairyman," and other minor publications. Mr. Johnson held for many years the office of Chairman of the Croydon Local Board of Health, of which he was the original President, and on his retirement from that office in 1877 the Board presented him with a splendid piece of plate as a recognition of his services, on which was the following inscription:—

"Presented to Cuthbert William Johnson, Esq., F.R.S., by his Fellow Members of the Croydon Local Board of Health, in testimony of the valuable assistance in Law and Science rendered by him for upwards of a quarter of a century as their Chairman, and in memory of their high esteem and affectionate regard. 1877."

Mr. Johnson was at the time of his death also a Director of the Royal Farmers' Insurance Company, and Chairman of The Tithe and Rent Guarantee Company.

Thus lived and thus died one of the best of men. He was a willing and an assiduous worker, and his object was useful work, such as would benefit his country and the community. The kindness of his nature, his strict integrity, his firm friendship, and his high sense of honour, will endear him in the memories of all who had the benefit of his acquaintance.—H.

VARIETIES.

"A COUNTRY VICAR," referring to the paragraph on page 196 stating that eggs have been very scarce in January and February, states that in spite of the mild weather the same number of hens with him have produced exactly twice the quantity of eggs that they did in those months last year. No doubt the cause is to be found, says our correspondent, in the roost having been made warmer, but at all events the season is not the cause of eggs being scarce.

It is proposed that an International Agricultural Show be held in London next year, and that every kind of European and, so far as is possible, of American farm and dairy produce shall be represented, and that all attempted solutions of food problems shall be afforded ample space. Live and dead animals, meat killed at a distance and preserved by various methods, butter, cheese, and the methods of producing them, as well as the huge catalogue of agricultural machinery and implements, will make up an exhibition of engrossing interest to the landowners and agricultural population of this country.

BUTTER FROM HOLLAND.—According to the Dutch *Landbouw Courant* the exports to the United Kingdom of two Dutch butter-making firms represent a value of £25,000 weekly, natural and artificial butter both included. For the manufacturing of their artificial butter these two firms use daily 20,000 kilograms of margarine, 8000 litres of new milk, some casks of white American syrup, and other minor ingredients.

AN instance of the damage which mice can commit in a bee hive lately occurred in the garden of Sir H. W. Peek, Bart., at Wimbledon House. Mr. Ollerhead, the gardener, who is a most successful practical bee-keeper, had observed a singular absence of bees in connection with what he conceived was a strong stock in a large Pettigrew hive. On turning up the hive it was tenanted

by five enormous mice, which were imprisoned in the hive and had grown fat on its contents—so fat that they were quite unable to pass through the aperture of the hive by which they must have entered when in quite a small state. The mice had eaten nearly all the bees and brood, and had, in fact, totally ruined a hive which last year yielded 95 lbs. of honey.

It is very certain, says an American writer, that it will not pay to keep pigs running around in what is called "store" condition, but which is often a half-starved state; for although they cost but little for food they pay nothing at all for that little, whereas when well fed from the first they pay all the while, and by being kept in styes they will so enrich any farm with their manure as to bring it up to bear heavy crops.

At the last Whitechapel hay and straw market there was a moderate supply of fodder, the demand for which was good, at slightly increased prices. Prime clover, 100s. to 134s.; inferior ditto, 85s. to 95s.; prime meadow hay, 86s. to 100s.; inferior ditto, 70s. to 80s.; and straw, 44s. to 51s. per load.

WINTERING BEES.

THE large honey supplies from Russia and North America clearly prove that the honey bee lives and flourishes in those countries, where severe winters are the rule not the exception. The extreme dryness of the atmosphere causes their winters to be less severely felt than our more moist and variable ones. There are few who have failed to observe the effects of frost on soft and succulent plants as compared with those dry and well hardened off. The same rule holds good with bees.

Mr. Pettigrew says he "has met with but few records of wild bees and fugitive swarms in Canada, or of honey harvests from them." One would have supposed he would have been much interested in the exploits and sagacity of the Indian bee-hunters in tracing and following-up the flight of those pioneers of civilisation "the white man's fly" to the "bee-tree," so termed by the native Indian, as indicating the approach of European settlements, and thus referred to by the poet Evans:—

"Ere o'er thy cozy leaf 'the white man's fly'
Shall, fear'd no more, her peaceful labours ply,
Enamour'd nestle on thy saffron crest,
Or in thy hollow'd trunk her bee-nymphs rest."

Your correspondent also remarks, "How it was Mr. Sturtevant lost nineteen hives out of twenty is not clearly stated." As the passage is most interesting as bearing on the point at issue I will quote in its entirety:—"No extremity of cold that we ever have in this climate will injure bees if their breath is allowed to pass off so that they are dry. I never lost a good stock that was dry and had plenty of honey. In the winter of 1856-6 I had twenty stocks standing in a row, all but one of which would have been regarded as in a good condition for wintering—not too tight below nor yet too open above. One was in a hive suspended 20 inches from the ground and without any bottom board. The chamber for surplus honey boxes was open to the north, and had eight 1-inch holes all uncovered. I left home about the 12th of February, the weather being very cold and the hives all banked up with drifted snow. Returning the last of the month I examined the whole row and found the nineteen thawed out, but in a sadly wet and miserable plight. If I could have taken them into a room out of the reach of the frost until they were dry they might have been saved. The weather changed to severe freezing before the next morning, and all the nineteen swarms soon died, while the one that was apparently so neglected came out strong and healthy. Before adopting upward ventilation I had lost my best swarms in this way until I became discouraged."

Mr. Pettigrew, with very possibly little experience of the habits of bees taking up their quarters in roofs of houses, and showing their predilection for a shaded or north aspect to there obtain, as I suggested, the most thorough dormancy with the consequent minimum consumption of honey. For his information I ought more fully to have explained that their so settling was not a mere fancy of mine or haphazard procedure. On the contrary, we never had a swarm come before its approach was heralded for several days by a daily increasing body of scouts, which selected and cleaned out the compartment, and with the first burst of good swarming weather the swarm duly arrived to occupy the selected site.

That bees prefer a rather shaded position to one exposed to the full blaze of hot sunshine is a well-known fact. In my novitiate days my old preceptor foolishly taught me to hive my swarms and leave them till the evening. On how many occasions did I find nothing but the empty hive to remove! whereas on more than one occasion have I found swarms alighting within the shade of an old tree unobserved work large comb cakes attached to the branch on which they settled, and maintain their position till their works were destroyed by heavy rains, leading to their discovery.—A RENFREWSHIRE BEE-KEEPER.

OUR LETTER BOX.

GOLDEN HAMBURGS (F. R.).—It will be unfair to expect as many eggs from birds in confinement as from those that are at liberty. We should

have been glad if you had given us the dimensions of the place in which the Hamburgs are confined and the nature of the run, whether it is hard gravel or plain earth. It is yet early for fowls to begin laying, and if in confinement they must be provided artificially with such food as they would pick up if at liberty. Green food, lettuces now and then, a swede or a carrot, but above all some good large sods of growing grass cut with plenty of earth; an occasional basket of road grit and some bricklayers' rubbish. Cleanliness, as it is understood by sweeping the ground of a run till it presents an even and spotless surface, is detrimental to poultry; they want something to scratch in and to search for—one of the many little adjuncts to health of which we know nothing, but which Nature teaches them to find. You will consider our answer full of generalities, but they bear on the question. Pullets lay when they arrive at the proper age; hens lay in the natural season. Your Hamburgs were pullets last year, and are hens now, and subject to the universal law. Are you sure they do not lay and eat their eggs? Fowls in confinement often do, especially if the eggs are suffered to lie about. Your time of dearth has been the winter, when eggs are very scarce, and have been this year unusually so. Your food is judicious, but substitute ground oats for sharps. If you provide the helps we have named your Hamburgs will now lay regularly, beginning in about a fortnight. We imagine the Brahmas and Dorkings are pullets. The four Dark Brahmas hens will not, perhaps, lay for another month because they are hens, but we cannot understand that the Light Brahmas do not lay at their age. It is against nature. We believe they lay. The eggs are eaten or they do not reach you. You say they are fed on meal in the morning and grain at two o'clock. If that is all the feeding they have it is not enough. They should be fed at this time of year at 6 A.M., at 12, and again at 6 P.M.

BRAMHAS OUT OF CONDITION (J. W. B.).—Give each of them a dessert spoonful of castor oil, afterwards give bread soaked in ale.

AYLESBURY DUCKS' EGGS (H. S.).—You need not be uneasy at the different colour of your eggs. It is common to all egg-laying birds. The Cochins lay some chocolate, some light brown speckled with white. Dorkings frequently lay brown eggs. Pheasants lay them of every shade, from sea green and light blue to a dark olive. Some attribute it to the condition or want of it in the bird, others to the state of the atmosphere. It is certain it is no sign of impurity of breed.

SKYLARK KEEPING (J. H., Glasgow).—In London they are generally fed on German paste, with about one-third the quantity of stale bun crumbled fine; in other parts of the country where this paste or composition is not known they are fed on whole grits and bruised hempseed mixed with bread crumbs, bruised oats, and poppy seed, cheese mites or mould, &c. They should have a turf every other day and plenty of clean gravel at the bottom of their cages, which should be cleaned out twice a week. A few mealworms, a few ants' eggs, and a few spiders now and then keep them in health and make them sing more cheerfully. They are naturally a strong and healthy bird, and may, if their cages are well sheltered at the top, back, and sides, be kept out of doors both day and night from May to August or beginning of September, when they will most probably go into moult. But they must be protected from draughts, winds, and rain, as they are apt to take cold, which brings on the husk. This is a very unpleasant complaint, as it frequently stops them when in full song. If their cages are properly boarded at the sides and back as well as at the top they will do best out of doors in the fine time of the year; it makes them stronger, and they will continue longer in song.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain.
1878.	Baromet- ter at 32° and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
March.		Dry.	Wet.			Max.	Min.	In sun.	On grass		
We. 6	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Th. 7	30.118	51.4	48.0	W.	45.9	56.1	42.2	66.1	38.6	—	
Fri. 8	30.099	49.2	45.0	N.W.	46.0	57.8	42.3	66.9	42.7	—	
Sat. 9	30.085	46.2	40.6	N.W.	46.1	55.5	42.3	63.9	36.3	—	
Sun. 10	30.211	37.6	34.1	N.E.	44.6	45.0	34.0	68.2	27.2	0.010	
Mo. 11	29.947	46.0	45.4	W.	44.0	53.4	37.4	62.2	38.9	0.010	
Tu. 12	30.272	46.3	44.2	N.W.	45.9	53.0	37.5	63.3	33.6	0.015	
	30.266	44.2	40.9	N.	44.4	52.0	41.8	64.6	42.1	—	
Means	30.140	45.8	42.6		45.0	53.3	40.2	61.0	37.3	0.135	

REMARKS.

- 6th.—Windy; fair day, overcast at times.
7th.—Very pleasant spring-like day.
8th.—Gusty wind during last night, colder and at times dull throughout the day, with intervals of bright sunshine. [the day.
9th.—Fair morning; foggy and dark at noon; cool and cloudy the rest of
10th.—Wet dull morning; fine bright sunny afternoon; solar halo at 5.30 P.M.; bright starlight night. [fine evening
11th.—Dull but fair morning; fine pleasant afternoon, though not sunny;
12th.—Damp morning; fine after 10 A.M., with bright sunshine; slightly foggy in evening.
Slightly cooler than the previous week, but very fine spring weather.—G. J. SIMONS.

COVENT GARDEN MARKET.—MARCH 13.

WE have no alteration to make from last week.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	1	0	0	0	Melons.....	each	0	0	0
Apricots.....	dozen	0	0	0	Nectarines.....	dozen	0	0	0
Chestnuts.....	bushel	10	0	0	Oranges.....	100	3	0	0
Currants.....	1	0	0	0	Peaches.....	dozen	0	0	0
Black.....	1	0	0	0	Pears, kitchen.....	dozen	1	0	0
Figs.....	dozen	0	0	0	dessert.....	dozen	3	0	0
Filberts.....	1	0	0	0	Pine Apples.....	1	0	0	0
Cobs.....	1	0	0	0	Plums.....	1	0	0	0
Gooseberries.....	1	0	0	0	Raspberries.....	1	0	0	0
Grapes, hothouse.....	1	0	12	0	Strawberries.....	1	12	0	0
Lemons.....	100	6	0	10	Walnuts.....	bushel	5	0	0


WEEKLY CALENDAR.

Day of Month	Day of Week	MARCH 21—27, 1878.	Average Temperature near London.			Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h. m.	h. m.	h. m.	h. m.	Days.	m. s.	
21	TH	Royal Society at 8.30 P.M.	51.1	32.7	41.9	6 2	6 12	10 40	6 30	17	7 18	80
22	F	Royal Institution at 8 P.M.	50.7	34.6	42.6	6 0	6 14	morn.	6 54	18	7 0	81
23	S	Royal Botanic Society at 3.45 P.M.	50.8	33.7	42.3	5 58	6 16	0 7	7 25	19	6 41	82
24	SUN	3 SUNDAY IN LENT.	48.5	32.2	40.3	5 56	6 17	1 25	8 9	20	6 23	83
25	M	Royal Geographical Society at 8.30 P.M.	51.1	32.9	42.0	5 53	6 19	2 26	9 6	21	6 4	84
26	TU	Royal Medical and Chirurgical Society at 8.30 P.M.	52.1	33.4	42.3	5 51	6 21	3 11	10 14	22	5 46	85
27	W	Royal Botanic Society's Spring Show.	54.1	34.7	44.4	5 49	6 22	3 42	11 28	23	5 27	86

From observations taken near London during forty-three years, the average day temperature of the week is 58.3°; and its night temperature 33.3°.

VEGETABLE CULTURE.

CHAP. XI.—ASPARAGUS.

 IN many parts of Britain as well as in several other European countries this much-esteemed vegetable grows wild. It is generally found near the sea, and is very partial to the rich sandy saline parts of the coast. Few gardens possess soil of that character, but Asparagus can be cultivated to great perfection in most garden soils. The only kind of soil to be strictly avoided for Asparagus-growing is a stiff clay, and soil about half clay does not suit it altogether, but is easily brought to the proper condition. Ground entirely free from clay requires only to be liberally manured before being ready for Asparagus. Soil, however, the least inclined to be clayey must have a good dressing of rich sandy compost added with the manure before it can be in a suitable state. Sandy mud is capital matter in which to grow Asparagus. In preparing our ground we first dig in a quantity of light manure; then refuse from the bottom of a pond, which consists chiefly of sand and decayed leaves, is added to the depth of 3 inches; this is also dug-in, and a final dressing of good cow dung is turned in some time after the sand. Digging the ground separately when each kind of manure is applied mixes the whole much better together than putting them all on at once. We apply all these ingredients to all kinds of soils, but in different proportions, according to the texture of the ground. Very light soil should have no sand added to it, but plenty of strong manure.

The soil may vary in depth from 1½ foot to 2½ or 3 feet. It should not be less than the first-mentioned depth. The best situation for Asparagus is one fully exposed to the sun but sheltered from strong winds, as the stems may be blown about injuriously when they are tall and slender in summer.

The best, or in fact the only way, of propagating Asparagus is from seed, which may be sown either in autumn or spring. I decidedly prefer the latter, and sow the seed from the middle to the end of March. There is only one way of sowing the seed, but it may be sown with different purposes in view. Sometimes it is sown in a bed, from which the plants are to be all lifted the second year and planted in the permanent beds. In other cases the seed is sown in the beds in which the plants have to come to maturity. We practise both of these plans at the same time, and we recommend others to do the same. After the ground has been thoroughly well prepared the seed beds are measured and marked off. Beds 4 feet wide hold four rows; the two outside rows being 6 inches from the alleys, which are 1½ foot wide. The other two rows come 1 foot apart. This is closer than is generally allowed for Asparagus, but I have not found it too close.

The old plan of raising the beds 8 or 10 inches above the alleys is quite unnecessary where the soil has been well prepared. The alleys need only be about 2 inches lower than the bed. On a dry day when the soil is not sticking to the feet the drills should be drawn about 1½ inch deep,

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and the seed be sown. The seed, if good, should not be sown thickly, and two or three seeds should not fall together. A little sifted soil and wood ashes or leaf soil should be spread over the seed before levelling down the soil drawn from the drills. The beds must then be raked over neatly, and nothing more need be done to them until the young plants can be seen in line. The Dutch hoe must then be run carefully between the rows, and this operation must be repeated frequently throughout the season, as an open surface and no weeds are the best inducements to growth that the young plants can have during their first season. By August the growth will be about 18 inches high, but the stems will not grow much after this, and it is important that the stems become well ripened in autumn. As a rule the beds of young seedlings will not require covering over with anything during the winter, but the withered stems should be left on all winter until about the beginning of March, when the beds may be very lightly hoed over and have the old stems removed.

During March many of the young stems will appear above the ground, and about the beginning of April when the young growths are from 2 to 3 inches high is the proper time to transplant the roots. When the roots are growing closely together our plan is to thin them out, leaving the remaining plants from a foot to 15 inches apart for the permanent crop. By this means the seed beds are left for cropping, and the plants which are lifted are planted in other beds for the same purpose. The beds for the roots which are lifted from the seed beds are prepared in the manner directed above. In planting, trenches of the width of a common garden spade are thrown out across the bed; they are 15 inches apart and 3 inches deep. The roots are spread flat out in the trenches, four being placed at equal distances apart in each opening, which form four rows the whole length of the bed. As the roots are set in their proper places they are covered over slightly with a mixture of leaf soil and sand, and the ordinary soil of the bed is then pressed gently but firmly against the young stems. This completes the transplanting, and it is an advantage when it can be done during mild dull weather.

After the surplus plants have been lifted from the seed bed the soil should be levelled around the plants left, and the Dutch hoe should afterwards be run between the rows to make the surface soil perfectly free and open. Should very dry weather follow the time of transplanting the beds are often much benefited by being watered, but this need not be done unless it is seen that the plants are stopped in their growth and look stunted. Throughout the season both the original seed bed and the spring-planted beds must be hoed frequently and kept free from weeds, and by autumn the plants will have made strong stems. As soon as these are withered they should be cut down close to the surface of the ground, and the best manure obtainable should be spread on the beds to the depth of 2 inches; the plants will live without this covering, but it is a great help to them. About the beginning of March this covering should be taken off and the beds be carefully hoed over, not so deep as to cut any of the young shoots which may be starting. The plants will now make their third year's

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growth, and if they have done well the shoots will push up very strongly; but the heads will be all the better the following year if none of them are cut, as it is liable to cripple the roots when the best of the shoots are cut too soon. After the third season a little of the shortest of the manure may be left on the beds in the spring and be forked lightly into the surface of the soil, or those who are afraid of injuring the roots may leave it on the surface without forking it in. The fourth season after sowing great quantities of fine shoots will be produced for cutting, and the beds will be getting into prime condition. In cutting, none of the shoots should be left to grow until cutting is wholly discontinued, and to give the plants a fair chance no heads should be cut after the middle of June.

Asparagus beds carefully made and well attended to will bear heavily until they are ten and twelve years old, but after they reach this age it is often more profitable to do away with them and have new beds in bearing order ready to replace them. Seaweed is better than manure for covering the beds, and where it cannot be had salt should be applied liberally when the manure is taken off the beds in the spring. The poorer the soil is the more salt should be given. When beds are becoming old and exhausted two or three good waterings with strong liquid manure during the dry weather in summer invigorate them very much.

Forced Asparagus is always much valued, and various modes are adopted for providing a supply before it is ready in the open air. In exceptional instances provision is made for forcing the roots when the beds are made. The ground is dug out 3 feet wide and the same in depth where the alleys have to be. A pigeon-holed brick wall is built up on each side to the ground level, and beds of the ordinary width are made between these walls. The plants are treated as in other beds, but when it is desired to force a bed in spring the vacancy between the two brick walls is filled up with hot manure, which heats the soil through the pigeon-holes. At the same time triangular-shaped covers are made either of wood or glass (glass is the best) to fit on to the brick walls and protect the heads when they come up early. This plan saves all lifting of the roots, but it is rather an expensive one. We adopt a less elaborate plan, and we cut Asparagus from the middle of November until the middle of June. We force it in a Cucumber house, but an ordinary hotbed and frame answer equally well. Where there is a bed with bottom heat in a Melon or Cucumber house a thin layer of soil should be spread over the bottom of the bed, and on this the Asparagus roots should be placed close together and be covered with 2 inches of soil. With a bottom and top heat of 60° growth soon begins. To secure full flavour the shoots must be grown fully exposed to the light, and air must be admitted when it can be done with safety. In forcing in a hotbed the mode of planting and the heat required are the same as when fire-heated pits are employed. After the roots have been forced they are not worth planting again and may be thrown away. The roots force best and are most productive between four and eight years old. The stems (heads) should not be cut from the roots the season previous to forcing, as the plants come to maturity sooner and are more productive when treated in this way.

Connover's Colossal grows larger than Giant or Battersea, but they are both excellent varieties for general cultivation. —A KITCHEN GARDENER.

PRUNING ROSES.

"WYLD SAVAGE'S" remarks under the above heading (page 162) are very seasonable and doubtless very acceptable to the exhibiting section of Rose-growers, but hardly applicable to the section he denominates "the cultivators of the garden Rose." The latter are undoubtedly in a great majority in point of numbers, but among the former are to be found the ablest and most enthusiastic growers and real lovers of the Rose—men well able to hold their own in argument or otherwise. Gardeners can and do admire the beautiful in all things, including Roses, but have but little time to devote to them, consequently have of necessity to take a practical view when selecting, growing, &c.

Roses on the Briar are still the most popular, and are certainly the least trouble to the cultivator, very little attention being required to keep them in good working order for years. Practical gardeners require no advice upon pruning them, but there are many amateurs and jobbing gardeners who apparently know but little about pruning, and to these my remarks I trust will prove of service. Roses, if required shapely and to

last a number of years, must be well and properly pruned. Too often the operator's sole aim apparently is to leave a neat compact head, with the growth both weak and strong of much the same length. What is the result? The strong overpruned growth produces still stronger and perhaps flowerless growth, the weak becomes still weaker, and in time an unsightly head with a minimum of bloom results.

Gardeners as a rule do not study the names when pruning; what they take notice of is the general appearance of the previous season's growth, and prune accordingly. Weak-growing plants are closely pruned to induce more vigorous growth, and strong shoots are cut in proportion to the growth made. When commencing on a good healthy head all weak growth is cut clean out, and where necessary to keep the plant within bounds the outer shoots with the old wood are cut back to the selected shoots. A limited number of the latter are retained according to the age and size of the plant, and these are shortened if extra strong to about four or five eyes, if moderately so (about the thickness of a lead pencil) to about three eyes. The centre in young plants is generally kept pretty clear of growth. Overcrowding the shoots should always be avoided; and on the other hand, if too hard pruned, strong growth and but little bloom is the result. This will be evident to the operator when next he prunes, and ought to be accepted as a hint to be more or less free with his knife.

Of course the Tea Roses require a different method of pruning. If vigorous, the shoots only require a slight shortening and the old and weak growth removed; if weak, they may be pruned similar to the Hybrid Perpetuals. Good heads of bloom may be thus obtained, but the supply is not so continuous. Roses are often scarce during the late autumn and early winter months. To obviate this I have found it an excellent plan at pruning time to cut hard back a vigorous shoot of the Gloire de Dijon Rose; strong growths follow, which mature early, and if slightly turned will yield a good supply of bloom till cut down by frost. These shoots sometimes flower at the point; cut this, and more flowers soon follow. Céline Forestier, if pruned similarly to the Hybrid Perpetuals, produces fine bunches of bloom; in fact I find this one of the most useful varieties. We have also had a fine lot of bloom from standards of Maréchal Niel. They are planted on a southern aspect; the heads are trained and are now showing an abundance of buds, which, however, will have to be protected or will be worthless. La France is a great favourite and is invaluable when grown in pots, especially as standards. Roses if pruned as above described will give a good supply of serviceable bloom, although they may not be fit for exhibition. It is very advisable to always cut close to an eye and thus avoid having to cut out any dead wood, the result of slovenly pruning.—W. IGGULDEN.

PROTECTING CHOICE STANDARD PEARS OR APPLES.

THE trees are capable of being grown in many shapes and under many circumstances: hence we have espaliers, standards, trees trained on walls and grown in pots, inside or outside with moderate heat, under peculiar circumstances, or better without any. Climate and seasonal variations affect the Pear and choice kinds of Apples during this critical season when flowering and impregnation are so much affected by the weather. Successful impregnation is of vital consequence in insuring the future crop. The mildness of the season in this locality has caused the flowering period to arrive nearly a month earlier than usual. But precaution is all the more necessary on that account.

I would mention for the information of your readers a convenient, cheap, and tolerably effective sort of protection adopted by Mr. John Crehan, Minella Gardens, near this town, which reduces the danger to open-air pyramids to a minimum.

Four firm stakes are driven into the ground equidistant, and so as not to interfere with the branches or flowers. A piece of strong canvas or calico is then tacked on one end reaching down low enough so as not to prevent a free circulation of air upwards, and high enough so as not to prevent the action of the sun downwards, almost horizontal with the top of the tree. This piece is then carried around the others and joined at the first, forming an effectual barrier against March blasts, and especially against those whirling winds that frequently gather force inside walled gardens, and have been known to play havoc among tender buds and young flowers by violently striking and rubbing branches together irrespective

of the otherwise harsh, dry, withering influence of the winds. This simple arrangement very effectually diminishes their influence, and nowise interferes with the action of the sun or the beneficial influence of a genial April shower, while it combines the characteristics of utility, cheapness, and convenience. Those who appreciate a choice fruit tree will not grudge the trouble of an operation that may conduce materially to success.—W. J. M., *Clonmel*.

PLANTING GERANIUMS IN TURVES.

THIS is an important part of my spring work in preparing a considerable number of bedding plants; and having very few pots at my disposal and no "shelves near the glass," I succeed to the satisfaction of a rather "crusty" old gentleman and four critical young ladies by the aid of a few turves dug from the wayside, and a few frames and home-made pits. I act on the advice of the late Mr. R. Fish, whose instructions I copied, and I copy them again for the benefit of many who are now "in a fix" for want of pots and house room for the accommodation of Geraniums, &c., which are spoiling each other by being crowded in cutting pots and boxes. The following is what I term Mr. Fish's recipe, and a valuable one it is, as I have proved by ten years of experience. "We cannot," says Mr. Fish, "find anything better as a substitute for pots than pieces of fibry turf. Thus, suppose from the side of a road or an old pasture you can take some turf 2½ inches thick and in breadths of 1 foot. We place that turf where it will be gently dried a little and warmed, and we prepare a little warmed, light, sandy soil, consisting of loam, sand, and very sweet old leaf mould. Then for stoutish plants of rooted cuttings with a sharp knife we cut our turves longitudinally and transversely into pieces of 4 inches square, for less plants 3 inches square, and so on; and a clever handy lad will scoop out a round centre piece from each of these square turves nearly as quickly as he would crock a pot, just leaving a bit all round the side and not going quite through to the grass of the turf. A little of the mellow heated soil is placed in the hole, the roots put in over it, a little more soil put over the roots and firmed as in a pot, then carried in sieves to their position, and watered with water from which the chill has been taken off. Now as to the position. For quick work—that is, making small plants large, and to have the turf pots bristling with roots all over, the best plan is to set these turf pots on a little leaf soil over a hotbed, however slight, as that will increase the rapidity of the rooting and growing; but in that case the turves must be lifted as soon as the roots come through them, and transferred to light soil in a cold pit, &c. If left long the roots would run through the bed, and the plants could not be safely turned. If taken in time to the earth pit and the trench the roots will progress more slowly, and when planting time comes they will hang like a wig round their centres of turf. When planted turf and all together they will run away into the well-aired soil, and thrive better than if they had come out of a pot with the ball unbroken. This is a good plan for all plants with straggling roots that will not lift well out of an earth bed, as *Manglesii* Geraniums, *Heliotropes*, &c."

By carrying out the above advice I annually produce far finer plants than the few I grow in pots, and I feel certain that whoever adopts the practice will find it both effectual and economical. I not only grow Geraniums, such as the scarlet-flowered and variegated-leaved varieties, in the manner described, but also *Verbenas*, *Ageratums*, *Salvias*; indeed all plants required for bedding-out in May.—A GROOM AND GARDENER.

BLASTING TREE STUMPS.

"PADDLE" asks how to do this. They can, of course, be blown up with powder, but by far the best way is to obtain some tonite cartridges from Mr. Dineen, the patentee, Queen Street, Leeds. He came here a short time ago to give a sample of the power and safety of the explosive, and to instruct my men to use it, and certainly wonderful were the effects. We bored holes slanting into roots and placed in each of them a cartridge with cap and fuse, and in a few seconds the root was blown to pieces, some requiring a second application.

Tonite is perfectly safe till the cap is applied. You may set it on fire in your hand, and it burns away like a bit of sealing-wax. The only danger is in fastening the cap to the cartridge and stemming it when ready in the hole; still there is no danger if the directions are attended to. It has the force of

dynamite without the danger, as it can do no harm till confined. Proper directions are sent with the cartridges, which are not expensive. The effects are still more marked applied to stone. Anyone interested in the subject will find a full account some months back in "The Journal of Forestry."—J. P., of *York*.

IS IT NECESSARY OR BETTER TO REMOVE RASPBERRIES OCCASIONALLY?

IN an article on the Raspberry I remarked in regard to the planting of the canes—"Clear the ground, manure it, and be sure no Raspberries have ever been planted there before, because in time they 'grow sick of the same soil.'" I have noticed what "D., *Deal*," and others have said controverting my statement, but strengthening myself by the opinion of gardeners near me I remain of the same opinion still.

I grant it may be possible for Raspberries under exceptionally favourable circumstances of soil and situation to do fairly well in the same place, but I believe they would have done better had they been removed every few years. Such is my experience. I have occupied the same house for twenty-two years, and have just recently removed my Raspberry canes for the third time, I rather think the fourth time. The result of the removal in each case hitherto has after the first year been a great increase of the crop. Then after a few seasons have rolled on there has always been a diminution of the crop. Then, further, the canes grow sick of the soil, which they show by burrowing under the soil and trying to escape. They have after a few years a strong tendency to run to a distance, mole like, by means of underground stems. Here we have Nature not only, as I take it, exerting her powers of extension, but seeking a new soil for bettering herself. I went into the question yesterday in respect to a large garden near me, where one of the under gardeners has worked continuously for forty years, and he says just the same, pointing to canes now almost useless which in former years were very productive. This, too, is borne out by another, and in this instance head gardener. But I would further say, Is not everything the better for occasional removing? Look at the state of the soil under any plant which has remained in the same place for years. "Sour," my old man calls it; dry, lumpy, worn-out it looks. But the Raspberry burrows away—sensible plant—in order to get into new ground. I state this as a general rule to follow.

"A MIDLAND COUNTIES FRUIT-GROWER" is very guarded in his opinion, commencing his remarks with "provided." Now, when a man begins with a "provided" he is cautious and by no means sure. He guards himself and his opinion, and very rightly too. Still, in spite of his lawyer-like and Scotch-like (is he not a canny Scot? I think he must be), I remain of the same opinion as before. Then my careful midland counties friend states that it "is prudent in making a new plantation to select ground that had been occupied by some other crop." So do I. In his recommendation for the general growing of Raspberries I of course heartily concur, as I have recommended it in my article. The few words by R. N. G. Baker and by another writer in *Notes and Gleanings* do not call for remark, as they do not controvert my opinion that Raspberries will do better if removed periodically. It is not sufficient that under exceptional circumstances they have done well remaining where they were. We have not had a little difference of opinion on paper for some time. We have been wondrously unanimous. Differences sift matters and the truth remains; the chaff and dust are driven off. I do not like personal controversy; people get red in the face, their eyes grow unduly bright; then men will get up from their chairs, stand before the fire, as if that would make them cooler. Then comes a long pause in conversation, and other people are sedulously talked with, and at the end of the party there is a ceremoniously-said "Good evening," the good being prolonged "Go-o-o-o evening." But on paper it is all different; there is that cool cucumber-like being called an Editor, with his pen in hand to strike out when needed, and to stop the fight if required. Oh! cool Editors, quite free from the fight—looking on, amazed doubtless, but still cool and cool always. What blessed benefactors ye are!—WILTSHIRE RECTOR.

ANTS PRESERVING APHIDES.

I RESPECTFULLY beg to differ from you in the opinion that ants are enemies to aphides. I have lived at three different places, where they were considered regular pests and destroyed them

accordingly. I have closely observed them, and have never seen any good resulting from their labours—quite the reverse; their sole aim is to preserve the aphides and other insect pests from view as much as possible. This, however, is from purely selfish motives, in order that they may enjoy the excrement. They completely cover mealy bug and scale with particles of soil, and this on growth some distance from the soil. Mealy bugs when so covered soon attain a great size. I have seen the Ladybird (*Coccinella*) thoroughly clear a plant badly infested with mealy bug. — W. IGGULDEN, *The Gardens, Orsett Hall, Romford*.

CULTIVATION OF SALADS.

CUCUMBERS.—In offering a few remarks on the cultivation of the Cucumber I will confine myself to those grown in frames. Cucumbers can be well grown in frames heated with a flue; the flue should run through the centre lengthways. Thick planks may form the foundation of the bed, and should be laid 15 inches above the flue. About 1 foot in depth of soil will be sufficient, but as the roots show on the surface more soil must be added—about an inch will do at a time. This must always be kept very moist, for the one thing that will bring disappointment in Cucumber-growing is keeping a dry atmosphere. Cucumber plants to last some length of time must be well pinched back, and when each shoot has made two or three joints it must be stopped. When the plants commence bearing a surface dressing of rich loose soil once a fortnight will be required, and the foliage must be kept thin, healthy, and clean. When sufficient manure can be obtained to make a good hotbed it is far preferable to fire heat. The quantity that will be required should be thrown up in a heap, turned over, and be well mixed together with one-half of leaves. The heat will not then be so intense and will last much longer than if the bed were made with manure alone. The seeds may be sown or the plants planted when the heat is down to 70°. The heat should not fall below 60° in the night, rising to 75° in the day with sun heat before air need be given. When the sun has great power it will be necessary to damp inside the frames twice every day, the first time about 9 A.M., when air should be given, and again early in the afternoon when the frames are closed.

LETTUCES.—The first sowing of approved Cos and Cabbage varieties should be made on a gentle hotbed early in March. The plants from this sowing will succeed those sown in the autumn. Sow also under a handlight on a warm border about the middle of the present month. Successional sowings should be made every three weeks during the summer in a damp situation and on good rich soil.

ENDIVE.—This may be sown the same as the Lettuces, but if so the plants must be planted on a north border, and if dry weather follows they must be well watered to prevent them running to seed. The main sowing should be made at the beginning of July, planting-out in rich soil in drills 3 inches deep. When the plants are large enough the ground should be run through with the Dutch hoe, which will fill the drills up. This will blanch the plants to a certain extent. They can then be tied-up the same as Lettuces, or have a flower pot inverted over them when a supply is required through the winter. They should be planted in cold frames to succeed those planted in the open ground. The Batavian is a very hardy variety, and is valuable for late use. It will endure severe frosts, but if a covering can be found so much the better to keep off the rain and snow during the winter.

RADISH.—The first sowing in the open ground should be made early in March, sowing again every fortnight during the summer months, the last sowing to be made at the beginning of September.

CRESS (Plain).—This can be sown in the open air the greater part of the year, and in heat during the winter as wanted. *American Cress.*—This is very useful where dressed salads are required, and may be sown as recommended for Radishes.

CHICORY.—The seed should be sown in drills in March 15 inches apart, and the plants be thinned-out to about 12 inches. The roots should be taken up in November and stored away in a dry cool place. The roots can be started into growth by various means in heat through the winter, but must be kept in darkness, so as to blanch the leaves as they grow; they can then be picked as required.

BEEF.—The seed may be sown about the middle of April, and the plants be thinned-out to the same distance as recommended for Chicory.

CELERY.—The first sowing is usually made in heat about the middle of February and the plants grown under glass. They should be first pricked-out in boxes or pans, and subsequently be potted-off in 60-sized pots, and after being gradually hardened-off be planted in a rather deep trench as soon as possible. If well watered and cultivated the Celery will be ready for use early in August. The sowing for the main crop can be made on a gentle hotbed about the end of March or beginning of April. When the plants are large enough they should be pricked-out 3 inches apart on beds. Before the bed is made place some slates or boards to form the bottom, then cover them with an inch of half-decayed leaves or rather long manure, then add on the top 2 inches of fine rich soil. Water copiously, and the plants will grow freely and can be removed with plenty of good roots. Where Celery is required in March and April it should be planted-out in August, and not be earthed-up, or only very slightly, till sharp weather occurs in late autumn, choosing a very dry day for the operation.

ONIONS.—These are very useful for salads, and can be had young by sowing a little seed once a month from March till September.—W. ETHERINGTON, *Swanscombe Manor*.

NOVELTIES IN THE ROYAL GARDENS, KEW.

THE charms of spring lead us first to the herbaceous ground, and there we find many choice beauties both new and old. *Tulipa stellata* is rather of botanical interest than horticultural value. It is remarkably narrow and slender in all its parts; the leaves are almost grassy, and the white flowers answer well to the specific name. It comes next to *T. Clusiana*, of which Regel made it a variety, but Mr. Baker in his Monograph prefers holding it a distinct species. It is a native of the Western Himalayas, and was contributed by Mr. William Bull. A figure will appear in the "Botanical Magazine."

Chionodoxa Forbesii and *C. Tuciæ* are two species of a genus not, until recently, in English gardens. The latter in particular is very bright and delicate. The flowers of it are about an inch across, something like *Puschkinia*, to which this genus is nearly allied, but wanting the corona. The colour is very bright blue on the outside, paling to pure white in the centre. It comes from Asia Minor.

Iris reticulata var. *Krelagei* we notice to be among the species, of which there is a fine clump. It is not nearly so bright in colour as the species, but is very good. The flowers are plum-coloured.

Among the *Narcissi* is *N. juncifolius* var. *rupicola*, a very rare and choice form, one distinguishing particular of which is the notched corona. A form of *Snowdrop* we observe is curious, indeed is more curious than beautiful. The ovary is yellow, and within pale yellow is substituted for the lively green which constitutes some part of the attractiveness of the common wild form.

Jatropha-podagrica, a species with dwarf gouty stems, is happy in its curiosity from the possession of very showy scarlet flowers. No other is more ornamental or more curious in its habit. It is now flowering in the stove, and is native of Santa Martha.

Griffinia ornata is flowering in the Begonia house. It is a new member of this interesting and often very beautiful genus, and was introduced by Mr. Bull from Brazil. It is one of the largest species. The bulb has something the form of that of *Crinum ornatum*, and the foliage, too, has a *Crinum*-like strength and appearance, but is much handsomer. The scape is about 18 inches high, and in this instance bears an umbel of a dozen flowers, which are nearly white, having a tinge of lilac. This genus is not at all well known in gardens, although it is one of the choicest for stove culture. Several species are small-growing and suited to choice selections. The true *Eucharis candida* is in flower, and truly there are few plants more floriferous.

DUKE OF BUCCLEUCH GRAPE.

"A MARKET GARDENER, N.B.," on page 181, has made a statement in regard to the above Grape that has no foundation in fact. He says it was regularly syringed here up to within a short period of its being ripe. The only times water is so applied to any Vines here is once after the Grapes are set, with a view to clear the bunches of the loose pollen and stamens, and to facilitate by that means the process of thinning; and in the case of a leaf or two at any hot corner showing red spider, but not to an extent making it worth while to sulphur the pipes. The leaves are then washed with the syringe, but

the fruit is carefully avoided. All my men past and present can testify to what I here state as being perfectly accurate. Permit me to say that I know of no market gardener visiting this place annually.—W. THOMSON.

ROYAL HORTICULTURAL SOCIETY.

MARCH 19TH.

For the first time during the season Hyacinths and Tulips were exhibited, and imparted quite a cheerful appearance as associated with the Palms and other greenery of the conservatory. The Hyacinths, which were contributed by Messrs. Veitch, Cutbush, Osborn, and Carter & Co., were not as a rule nearly so good as we have seen staged during past years; still we observed many excellent spikes. The conservatory was quite filled, and the exhibition was an attractive one.

FRUIT COMMITTEE.—Henry Webb, Esq., V.P., in the chair. Mr. Iggulden, gardener to R. B. Wingfield Baker, Esq., Orsett Hall, Romford, sent a dish of Tomatoes said to be a cross between Hathaway's Excelsior and Sims' Mammoth, but considered by the Committee as Hathaway's Excelsior. It was awarded a cultural commendation. Mr. Iggulden also sent a seedling Apple, but it was not considered better than other varieties already in cultivation. Mr. Elliott, seedsman, Braywick, Maidenhead, sent specimens of the green variety of the true Buda Kale. He also exhibited a kind of shading for glass structures. The prospectus says—"It produces a delightfully pleasing shade that can only be compared to a light green or grey cloud over the face of the sun, and Ferns and other delicate plants and flowers are seen to better advantage and appear more pleasing to the eye than when seen under any other condition. Five years' experience has proved that it is very beneficial to vegetable growth, for, while it breaks up the direct fierce rays of the sun and produces a desirable amount of shade, it does not deprive the plants of a large amount of light so necessary to their healthy development."

FLORAL COMMITTEE.—Dr. Denny in the chair. We will glance at the groups in their order of arrangement. Near the entrance of the conservatory at the east end was arranged a collection of plants from the Society's garden at Chiswick, including Eucharises, very good varieties of *Imantophyllum*, small well-flowered plants of *Conoclinium lanthimum* (figured on page 206), and standard plants or miniature trees of *Wistaria sinensis*, which were very attractive. The group was edged with small plants of *Isolepis gracilis*. A small plant of the singular *Dendrobium linguaeforme* from Chiswick was awarded a botanical commendation.

The next group was arranged by Mr. Aldous, florist, Gloucester Road, South Kensington. It consisted of early-flowering Pelargoniums, Azaleas, Cinerarias, Heaths, Lilies, Palms, Ferns, and Mignonette. Messrs. Cutbush & Son contributed an excellent and well-arranged collection, comprising large round baskets of Epacris, Ghent and Indian Azaleas, very fine pans of Lilies, and good Hyacinths. *Ericas colorans* and *gracilis vernalis* were attractive in this collection. Messrs. Cutbush & Son had a first-class certificate for Hyacinth Grand Master. The spike is tall, bells reflexed and thinly arranged; colour very pale blue striped with dark blue. A fine spike of the same variety was in Messrs. Veitch's collection. Messrs. James Carter & Co. had the next group, which was composed wholly of Hyacinths. Many of the spikes had not quite arrived at their best, but the colours were well mixed and a cheerful effect was produced.

We now arrive at the centre of the building, and find a very fine collection of Hyacinths and Tulips from Messrs. Veitch and Sons. Although we have said that Hyacinths are not so good as usual this year, many undoubtedly good spikes were in this collection. The Tulips were excellent, as also were the Narcissuses. Messrs. Veitch also exhibited a small group of Hippeastrums; *spectabilis*, white flaked with scarlet; and *cruenta*, crimson scarlet, being very fine; also an effective basket of flowering sprays of hardy shrubs. These included *Daphne mezereum* and *mezereum alba*, *Azara microphylla*, *Viburnum Tinus rugosum*, *Grevillea rosmarinifolia*, and hardy Heaths. First-class certificates were awarded to the firm for the fine deciduous *Magnolia Halleana* from Japan. The flowers are white, and the narrow strap-like petals reflex gracefully. It is very attractive and delicately perfumed. It is as pure and sweet as the white Water Lily, and is a valuable addition to early hardy-flowering shrubs; also to the curious Orchid *Bollea Patini*, the fleshy petals and sepals rosy violet tipped with purplish magenta; also for Hyacinth King of Blacks, a variety with a fine spike and large well-formed reflexed bells, black faintly tinted with violet; an excellent variety. A new Hyacinth, Queen of the Blues, was also much admired for its symmetrical spike, fine flat bells, and bright colour.

In contrast with Messrs. Veitch's flowering group was a collection of plants arranged by Mr. Wills. The ground was composed of Ferns and Lycopods, amongst which were thinly interspersed such Orchids as *Phalaenopsis* and *Odontoglossums*; *Anthuriums*, *Cyclamens*, and *Callas* were also included, and a few choice Palms. It was very fresh and pleasing. The adjoining group was from Mr. B. S. Williams, and was formed chiefly of a brilliant bank of

Hippeastrums, the varieties varying in colour from pure white to rich vermilion-scarlet. Mr. Williams also staged a very fine plant of *Imantophyllum miniatum* with about twenty flower heads. *Oreopanax dactylifera* in this collection was distinct by its massive palmate foliage. Messrs. Osborn & Sons, Fulham, staged an extensive and excellent group of Palms and other ornamental-foliaged plants. The striking flower in this collection was *Imantophyllum miniatum major*, a variety with large highly coloured flowers and broad dark foliage. Messrs. Osborn also exhibited three Abutilons—Lady of the Lake, rose; Orange Perfection, and Aurea globosa. They also arranged a collection of Hyacinths and Tulips.

A first-class certificate was awarded to Mr. Mill, gardener to Lord Rendlesham, Rendlesham Hall, Woodbridge, for *Odontoglossum pardinum*, a valuable Orchid for decorative purposes, the plant being evidently of free growth; the spike is strong, gracefully arched, 2 feet long, and with seven or eight branchlets of bright orange-yellow flowers spotted with reddish brown. The waved petals impart a distinct appearance to the plant. Mr. Hall also exhibited cut blooms of *Cattleya Skinneri*, remarkably rich in colour, for which a vote of thanks was awarded.

Mr. Iggulden, gardener to R. B. Wingfield Baker, Esq., Orsett Hall, Romford, exhibited very fine cut sprays of *Sparmannia africana* (figured on page 91), and was awarded a vote of thanks. Messrs. John Laing & Co., Stanstead Park Nursery, staged three *Caladiums*, one of which, *La Perle du Bresil*, was singularly chaste, its surface resembling silver tissue paper traversed with distinct chocolate veins. Mr. Cannell exhibited cut blooms of his white, scarlet, and striped sports of *Geranium Vesuvius*; also extremely floriferous plants of the salmon variety, which cannot fail being valuable for bedding purposes. The Committee desired to see it bedded out before adjudicating on it. It is distinct in colour and very promising. Mr. G. F. Wilson had a vote of thanks for *Erythronium Dens-canis grandiflorum*. The flower is straw-coloured, and the foliage marbled—very attractive. Messrs. Rolliason and Sons exhibited the dwarf double Japanese Azalea *Rolliasonii*. The flowers are rosy scarlet, imbricated, and well formed—very distinct. Messrs. Garraway & Co., Clifton, Bristol, exhibited plants of Garraway's White Mignonette, the spikes being very delicate and sweet. Mr. Parker staged a collection of *Megasias* and a fine plant of *Erythronium Dens-canis purpureum*, which was highly attractive. Mr. Lee, Clevedon, Somerset, exhibited some bunches of *Violet Odoratissima*, the flowers being large, round, blue, and very sweet.

Mr. R. Dean staged a collection of hardy spring flowers, including several small alpine species of *Primula*, *P. denticulata* being very fine. *P. purpurea* appears to be an improved variety of this useful species. *P. nivalis* was also highly attractive. The collection also included several *Polyanthuses* and *Primroses*. Octoroon and Magenta among the latter are promising varieties for garden decoration. Messrs. Barr & Sugden staged several cut flowers of *Narcissus*, to one of which—*N. incomparabilis aureo-tinctus* Leedai—a first-class certificate was awarded. The perianth segments are pale yellow, and the corona orange-yellow. The pretty *Iris persica* and one or two others were also exhibited by Mr. Barr. Mr. Cauldwell, Wallingford, staged cut blooms of *Polyanthus* in good decorative varieties. Mr. H. Parr, The Gardens, Harrow Weald Park, Stanmore, was awarded a vote of thanks for *Begonia glaucifolia* grown as a basket plant. The flowers are pale in colour, but the habit of the plant is distinctly pendant, which renders it suitable for special decorative purposes. An attractive bloom of *Tulipa præcox* was exhibited by H. J. Elwes, Esq., Preston House, Cirencester.

Besides the marks of recognition above recorded the following medals were recommended. A small gold Banksian medal to Messrs. Osborn; a silver-gilt Flora to Messrs. Veitch for Hyacinths and Tulips; a silver Flora to Mr. B. S. Williams for Hippeastrums; a silver Banksian to Mr. Wills; a silver Banksian to Mr. Aldous; a silver Flora to Messrs. Cutbush; and a bronze Flora to Messrs. Carter.

At the afternoon meeting Col. Trevor Clarke in the chair, Mr. Samuel Jennings, the Assistant Secretary, read an interesting paper on the Epacris, illustrated by flowering sprays of several species and varieties. The lecture was attended by a considerable number of visitors.

Twenty-eight new Fellows were elected during the afternoon.

NOTES AND GLEANINGS.

At a general meeting of the Royal Horticultural Society held yesterday, Col. R. Trevor Clarke, V.P., in the chair, the following candidates were elected FELLOWS—viz., Mrs. Bourne, Mrs. Brooker, Rev. T. Carroll, M.A., Wm. Caudwell, Mrs. Chalmers, Miss Cole, Alex. Courthorpe, Mrs. J. H. Dobree, Walter Drummond, S. Elliott, jun., Master Foster, Col. R. Temple Godman, Matthew Hedley, Mrs. Staveley Hill, Mrs. Seton Karr, Col. Sir Henry Atwell Lake, K.C.B., James Levesley, Capt. R. C. Mayne, R.N., C.B., W. J. Nutting, jun., Denis M. O'Connor, M.P., W. W. Rust, Mrs. Streatfield, G. M.

Tagore, John Tennant, H. Payne Townshend, Dr. John A. Tulk, R. A. Valpy, J. Sidney White, &c. The following were admitted guinea members—viz., George T. Whish, Mrs. George T. Whish, Miss Reeve, and A. McLean. The Nottingham Floral and Horticultural Society was admitted into union.

— AT the monthly meeting of the UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY held at the Caledonian Hotel, Robert Street, Adelphi, on the evening of March 11th, the Chairman of the meeting on behalf of the Committee and members presented Mr. J. F. McElroy with a watch and chain in recognition of his services as Honorary Secretary of the Society.

— As a herald of the coming campaign of the war of the Roses the schedule of the ALEXANDRA PALACE ROSE SHOW, to be held on June 22nd, is issued. The Show is limited to one day, and that a Saturday. No other day, we may presume, could be relied on by the Managers to ensure a sufficiently large attendance of visitors. To many ardent rosarians, including some exhibitors, Saturday is a proverbially inconvenient day; but such will at least agree that the Show had better begin and end on that day than open on Friday and continue over two days. The Saturday public will, too, have the privilege of enjoying an exhibition worthy of their patronage, which a Rose Show certainly is not when thirty-six hours old. The Managers of the Alexandra Palace have hitherto been fortunate in their fixtures, and admirable displays have resulted; but this year the authorities have fixed the date of the Show eight days earlier than last year. The prizes are liberal, and are arranged in the usual order, five classes being devoted to nurserymen, six to amateurs, and nine are open classes. Four prizes are offered in all the principal classes.

— ON the morning of the 14th inst. at Longleat, Warminster, was registered 11°, on the 15th 8°, and on the 17th 11½° of FROST. Peaches and Pears are getting too forward to allow one to feel quite comfortable about them under such low temperatures; but still the fruit bloom is quite a fortnight later than it was last year, and consequently there is a greater chance of saving as much of it as the cold wet summer allowed to perfect.

— WE have received pips of gold-laced SEEDLING POLYANTHUSES from Mr. R. Kirke Penson. The plants have been out in the open ground all winter, and the flowers are consequently small. They, however, possess the desirable properties of being round and flat, with thrum eyes, a smooth yellow centre, very rich maroon body colours, and bright and clearly defined lacing. The only fault we can perceive in the flowers is that the segments are rather too much pointed. The varieties are worthy of good cultivation, and if the plants possess healthy habits and have good foliage and flower stems they will be well worthy of a place on the exhibition table where such flowers are shown. We have not seen more promising seedlings for a long time.

— AMONGST spring-flowering shrubs, writes "A KITCHEN GARDENER," *BERBERIS DARWINII* has few or no equals. It has been in bloom in the pleasure grounds since the beginning of March. Every shoot—many of them 3 feet long—is thickly set along the under side with clusters of buds and orange-yellow flowers, which are not only exceedingly beautiful on the bush but very valuable in a cut state for mixing with other flowers. The plants bloom when quite small, and they will grow in nearly any kind of soil or situation.

— AS an instance of making a FLOWER BED ATTRACTIVE IN EARLY SPRING with the aid of a few simple materials one of the beds at Munster House, Fulham, is worthy of mention. It is a round bed, and only two kinds of plants are employed—namely, Golden Feather and red and white Daisies. Small plants of Golden Feather about an inch in diameter raised from seed sown in the summer are planted round the bed and also across it in six equidistant lines, which form bright margins to as many triangular-shaped spaces. These wedge-shaped spaces are alternately planted closely with red and white Daisies, and the effect produced is very cheerful both when viewed from a distance and examined closely. When plants so hardy and so easily raised are capable of producing such a pleasing display in March there can be little excuse for bare beds. The bed, too, will improve in beauty until the middle of May—just in time for its being prepared for summer decoration.

— THE flowering ALMOND TREES (*Amygdalis communis*) are now very beautiful in the gardens around London, and impart quite a cheerful appearance to shrubberies and villa

gardens. The trees are flowering very profusely in spite of the keen winds and occasional frosts which have lately prevailed. This is one of the earliest of flowering trees, and is sufficiently hardy to thrive satisfactorily over a large extent of the country.

— It is a long time since so much MARCH DUST has been seen as during the present month. Valuable as it is, or the weather promoting it, on the farms and in the gardens of the country, the dust is a nuisance in London, and street-watering both in the City and suburbs has been necessary since the beginning of the month. The soil in gardens and nurseries has been in splendid condition for working. There has been a considerable fall in the temperature during the past week, which has been very welcome for retarding the expanding blossom of fruit trees.

— THE question of which is the EARLIEST and QUICKEST-GROWING CUCUMBER is a matter of considerable importance to many cultivators. We have lately inspected the early crop of an excellent cultivator—Mr. Rapley, gardener to R. Hudson, Esq., Clapham Common, and Osmaston Manor is fully three weeks earlier than Tender-and-True, Telegraph, and other popular varieties. The same results were produced last year, for the cultivator obtained a cultural commendation for Osmaston Manor before the other varieties named had set any fruit. This year the appearance of Osmaston Manor is very striking by the fine crop of fruit now hanging, some of the Cucumbers being 2 feet in length, while Tender-and-True is only just setting its first two fruit. The plants are all of precisely the same age, and have grown alike freely. Where Cucumbers are desired as quickly as possible, as is not unfrequently the case, Mr. Rapley's two years' experience is worthy of being recorded for the guidance of others.

— HAARLEM, the great Tulip town, exhibits at the Paris Exposition a bed of 40,000 BULBS.

— THE long glass range in the nurseries of MESSRS. OSBORN & SONS at Fulham is now very gay with American and Ghent Azaleas, which are very valuable for early decoration and for affording cut flowers. The plants are hardy, of easy culture, and represent a great variety of colours associated with fresh green foliage. The Chinese Guelder Rose, *Viburnum plicatum*, is also extremely attractive, the flowers being large and very pure. It is a forcing shrub of the first order of merit. *Conoclinium ilanthinum* is also flowering effectively, as also is the scarlet *Burchellia capensis*, and several varieties of *Epacris*. These, with *Hyacinths*, *Tulips*, and *Narcissuses*, which are well grown in this nursery, render the houses bright and cheerful. Ferns and Palms afford sufficient relief, a fine stock of *Adiantum farleyense* being grown in pure loam. In one of the houses the small and seldom seen *Tetranema mexicana* is flowering, the habit of the plants and flowers somewhat resembling *Violets*. In the nursery the *Leatherwood Tree*, *Dicra palustris*, is covered with small yellow flowers. It is a dwarf shrub found growing in the marshes of North America, and is suitable for planting in moist positions. Its wood is very tough, hence its popular name. The bark is acrid and cathartic, and the fruit is narcotic like *Stramonium*. *Cornus mascula* is also flowering freely, and the fine trees of *Magnolia conspicua* will, weather permitting, shortly be in great beauty.

— MR. H. B. ELLWANGER, of the Mount Hope Nurseries, Rochester, N.Y., in reviewing the ROSES OF THE PAST TEN YEARS, adjudges Catherine Mermet and Marie Van Houtte as the most refined in the class to which they belong. "Were I," writes Mr. Ellwanger, "unfortunately compelled to grow only two Roses of the class for cultivation I should without hesitation choose those two. Among many jewels they with *Maréchal Niel* are the fairest of the fair."

— MR. CHALLIS, late gardener at Cheveley Park, Newmarket, has been removed to Bute House, Campden Hill, Kensington, the Duke of Rutland's London house. Mr. Cox has been sent to Cheveley and is now gardener there.

— It is a little surprising that the distinct and early-flowering RHODODENDRON PRÆCOX is not more extensively planted in shrubberies. It is very early, hardy, and attractive. Mr. G. F. Wilson recently exhibited sprays at South Kensington of a longer-flowered variety named *R. præcox superbians*, which we also observed quite covered with purplish lilac flowers in Mr. Wm. Paul's nursery at Waltham Cross. It is a valuable early-flowering shrub, somewhat resembling Messrs. Veitch's fine variety *Early Gem* which we have previously

alluded to. These hardy and precocious Rhododendrons are as useful in shrubby borders in early spring as are plants of the small *Azalea amoenae* and its improved varieties for greenhouse and conservatory decoration.

— ONE of the brightest double PELARGONIUMS that we have observed recently was in the possession of James McIntosh, Esq., at South Kensington on the 19th inst. The colour is crimson magenta, and the truss and pips are very fine. Mr. McIntosh speaks highly of this variety, which he had from Mr. Cannell under the name of Joseph Somers.

— REFERRING to the BAMBOO IN ANNAM, *Galignani* observes that this eastern kingdom possesses immense forests, which contain many sorts of trees capable of supplying the most valuable wood, and some day, when the commerce of those distant regions is more developed, they will become the object of a large trade. But the vegetable production most esteemed by the poor and oppressed people is unquestionably the Bamboo. Every house and village, from the seashore to the mountains, is furnished with its belt of this reed, and, to judge from the manifold usages to which it is applied, they have by no means a superabundance. The young shoots are eaten as a vegetable; the natives make of it paper, string, and cord, trellis-work, textile fabrics for dress and all other domestic purposes, baskets, mats, and partitions; they construct of it boats, and utensils for cooking which will stand fire, pipes and pipe stems; boxes and coffers lacquered, of great solidity and very elegant; they form their hats of it, and the best arms of the country are bamboo clubs; its thorns and thick hedge are the strongest defences of the dwellings, and portions of it are sharpened and driven into the ground in front of the fortresses to form stockades, and every soldier on service is bound to be furnished with a certain provision of such pieces; sonorous instruments are made from it for signals as well as bridges to cross torrents, and finally houses are built with it. From the above enumeration some idea may be formed of the quantity required by a population numbering between thirty and forty millions.

— WE have received the first number of a work by Mr. Thomas Christy, F.L.S., entitled "NEW COMMERCIAL PLANTS, with directions how to grow them to the best advantage," also a number by the same author of "Forage Plants and their Conservation," the object of which appears to be to further the cultivation of the Caucasian Prickly Comfrey (*Symphytum aspernum*) which is spoken approvingly of both on account of its productive properties and nutritious qualities.

PRUNING FRUIT TREES.

SOUND and well-timed remarks by "A MIDLAND COUNTIES FRUIT-GROWER" on this important subject appeared on page 121. I quite agree with your correspondent that where the greatest bulk of fruit is the object in a limited extent of time, the safe practice is to "put much trust in Nature" and to employ the knife sparingly.

At no period of the year than the present can more important lessons be learnt on the pruning of fruit trees, and especially by comparing healthy young trees that have been pruned in the orthodox manner by the side of other healthy trees that have received little or no aid from the knife. The regularly pruned trees may be rigid models, of symmetrical outline, but they do not contain half the quantity of blossom buds, and are not much more than half the size of trees that have been left pretty much to Nature.

If healthy examples of pyramid Pear trees, for instance, that have not been pruned—that is, not having had their branches shortened-back for the past three years, are examined now they will be found bristling with white, fat, swelling blossom buds; while trees, as a rule, that have been systematically mutilated contain comparatively few fruit buds in proportion to those on the unpruned trees. Your correspondent has well observed that if the branches of the trees are left unshortened that natural spurs will form on them; but if two-thirds of the length of last year's shoots is cut off the result is not blossom, but another mass of shoots similar to those cut off. This is what the fruit-grower means by growing crops of "flower stakes." If the long young shoots of unpruned Pear trees are examined now hundreds of fruit buds will be found on last year's shoots as well as on the two-year-old wood. It is instructive to notice, too, the particular portions of the shoots that contain the greatest number of blossom buds. Take a shoot from 18 inches to 2 feet in length, examine it, and the

9 inches at its base will contain nothing but wood buds, which no amount of pruning can convert into blossom buds; but the remaining portion of the shoot, and especially near its point, will contain many blossom buds. Now had pruning been resorted to in the common manner, and before the blossom buds were so recognisable as they are now, precisely that part of



Fig. 33.—*Erica andromedaeflora*.

the shoot which produces them would have been cut away, while exactly that portion, the lower 9 inches of the shoot, which does not produce fruit buds, or at least is a long time in doing so, would have been retained. What for? Answer, To grow more wood.

It is impossible to form even an approximate estimate of the enormous annual destruction of fruit-tree blossom by the popular system of shortening the shoots. The clean healthy growths of hardy fruit trees, such as Apples, Pears, Plums, and Cherries, are systematically shortened because it is supposed the wood removed is not ripe. But ripe or unripe, it is the wood that produces the most fruit, and, as if affording

a perennial rebuke to pruners, continues producing it for an indefinite period of time—a great number of years. Is not the wood-ripening hobbyhorse of hardy fruit trees being ridden too hard? Are there no fallacious notions existant in reference to the ripening process of the wood of hardy trees? Does a shoot that we regard as only partially ripened for ever remain so, or does it complete its maturation the following year? That is a question worthy of a little consideration. Nine-tenths of pruners act as if they believed that a shoot that was not fully matured in 1877 could not become additionally mature in 1878, therefore the amputating remedy is applied and the shoot is severed from the tree. I believe the ripening of wood to be a slower process than that, and that if its maturation is only partially effected during one year it is completed the next. I wish some such practical gardeners as Messrs. Taylor, Luckhurst, Abbey, and others, also some Rose-growers, would state their opinions on that point, which is one of the few things in gardening practice that has not received the attention it merits, and one which has a direct and important bearing on the fruit supply of this country.

In connection with fruit trees which have been left pretty much to Nature another point is worthy of attention. Such trees, say at five years from being planted, not only produce an infinitely greater amount of blossom than trees that have been rigidly pruned, but the unpruned trees usually set their fruit much better than do the mutilated trees. I could point to a garden, or rather to two gardens side by side; both of them are large, and contain many hundreds of fruit trees. In one garden the trees are pruned systematically, and have, in fact, carloads of "flower stakes" cut from them annually. In the other garden the pruning is almost limited to thinning out the branches, scarcely a shoot ever being shortened. If it were possible to ascertain the amount of fruit that has been gathered from the two gardens in question, say during the last ten years, I do not hesitate to say that, taking a given number of trees at the same age from each garden, that five times the quantity has been gathered from the unpruned that has been gathered from the closely pruned trees. This is not entirely attributable to the blossom-bearing condition of the trees, but there is an important difference in their fruit-setting properties. I have seen the trees in one garden practically barren when those over the fence have been heavily laden with fruit. Both were subjected to the same climatic influences, and were growing in soil of precisely the same nature. I attribute the difference, to a certain extent, to the different physical condition and character of the trees. In the unpruned trees Nature had determined the proper and healthy balance between root and branch; but in the pruned trees the roots were, to speak paradoxically, in the ascendant. When this is the case—I mean when root-action is excessive and the growth of the trees is very exuberant, as is generally the case with young and severely pruned trees—the blossoms often fail to set satisfactorily.

That the pruning of fruit trees has been and is carried out too severely when the object is to provide a maximum quantity of fruit within a minimum extent of time is an impression that has become fixed in the minds of many practical cultivators; and the subject is at least of sufficient importance to receive the attention of those engaged in growing hardy fruit to meet a large home-consumptive demand, or for market purposes. It may be well to prune young fruit trees rather closely for the first three or four years after they have been grafted in order that they may form a stout framework of branches; but after that, if the supply of fruit is of greater moment than an artificially symmetrical shape of tree, then the pruning should be nearly or quite limited to the thinning-out of the branches, so as to induce the formation of natural spurs.—J. W.

CULTURE OF THE CINERARIA.

Or spring-flowering plants the Cineraria will always stand in the foremost rank for decorative purposes. Great improvements have been made of late years both in the form and colour of the flowers. The petals are now of great substance, and the colours are very bright and varied.

The second week in April I have found to be the best time for sowing the seed for early blooming, and the latter end of May for late blooming. The seed should be sown in pans, in a mixture of equal parts of loam and leaf soil, with a little sand to keep the soil open. The compost should be pressed in moderately firm and have a gentle watering. Sow the seed thinly, and cover it very lightly with a little fine soil. Place a layer of damp moss on the surface to counteract the drying of

the soil, which is much preferable to watering, removing the moss as soon as the seedlings are discernible. Place the pans in gentle heat until the seed has germinated, when they must be removed to a cool house or frame, placing them close to the glass to prevent the seedlings being drawn. Care must be taken also to shade them from bright sunshine. When large enough to be handled prick the seedlings into pans or boxes, using the same kind of soil as the seed was sown in, with a little very much decayed cow dung added. Keep them close for a few days until they have a fair start, after which an abundance of air must be given. When the leaves touch pot-off the plants into 60-size pots and keep them close to the glass. A position should be given where they do not have the direct action of the sun, so as not to have the shading material on too long. The next shift will be into 48 or 32-sized pots, using two parts of yellow loam, one part of leaf soil, and one part of decayed cow dung, with a little river or silver sand added. A cold frame with a north aspect will then be the best place for them, and they must be carefully watered. If it is desirable to make large specimens repot the plants into 16-sized pots, using the soil more lumpy. During fine nights in summer the lights should be drawn off for the plants to have the benefit of the night dews. The plants should be stopped once, which should be done before their final shift. Place a piece of string under the rim of the pots to which the shoots can be secured, so that the air can circulate well amongst them. The tying also keeps the plants dwarf and of good shape.

For forming specimens it is the best plan to have named sorts or selected seedlings, which must be increased by cuttings or offsets. After the plants have flowered cut them down. A portion of the surface soil must be removed and be replaced with some rich compost, which the offsets will readily root into, when they must be taken off and be treated as seedlings. When the pots are filled with roots a little liquid manure should be given. When there is danger of frost the plants should be removed to an airy position in the greenhouse. Some growers recommend keeping them in a cold frame, but I have found the foliage liable to damp off, as they cannot have the requisite amount of air in frames, which have to be covered up a great deal to exclude frost. Those plants which have been treated so as to form specimens should be tied into shape before they come into bloom, so as to give the flowers and foliage time to assume their symmetrical position. Some of the plants will sometimes go off, which some attribute to the grower's carelessness, but which I think is a disease, as during some years I have not lost one plant, whilst in others I have lost several. Fumigate frequently as a preventive of green fly, which is much better than waiting until the plants are infested.—A SOUTHERN GROWER.

PORTRAITS OF PLANTS AND FLOWERS.

HOODIA BAINII. *Nat. ord., Asclepiadaceæ.*—"This very interesting addition to the Cape Flora was originally brought by Mr. Thomas Bain from Uitkyk, on the road through the Karroo to Beaufort West, in the autumn of 1876, and given to Sir Henry Barkly with flowers preserved in spirit. Subsequently Mr. McGibbon, the Curator of the Cape Botanic Garden, obtained specimens of the same plant from Mr. Lycett of Worcester, South Africa; and one of these was brought by the former to this country on his recent visit, and presented to the Royal Gardens, where it flowered in July of last year."—(*Bot. Mag.*, t. 6348.)

JASMINUM DIDYMUM. *Nat. ord., Olceæ.*—"This very pretty Jasmine is a native of tropical and subtropical Australia, and extends into the Pacific, inhabiting Lord Howe's Island, New Caledonia, the Fijis, and Timor; in all these countries frequenting sandy ridges and cliffs, &c., near the sea. It forms a very elegant hothouse climber, with bright green glossy leaves and pendulous festoons of white flowers, which appear in midwinter. I think it was sent to Kew by Mr. Milne, the collector in Captain Denham's surveying voyage to the Pacific about twenty years ago, since which time it has been known in the Palm house at Kew as an old inhabitant."—(*Ibid.*, t. 6349.)

RONDELETIA ODORATA var. *BREVIFLORA.*—"This has been long cultivated at Kew under the name of *Rondeletia speciosa*, a plant first published in Loddiges' 'Botanical Cabinet,' with a wretched figure and no botanical description, and which is said closely to resemble Jacquin's violet-scented *R. odorata*, but to differ in not having the slightest scent. Now the plant

at Kew figured is scentless, and has much smaller flowers with a far shorter corolla-tube than either the native herbarium specimen or the published figure of *R. odorata* and *speciosa*, and must hence be either a new species or a variety of one or the other of these."—(*Ibid.*, t. 6350.)

PTEROSTYLIS BAPTISTII. *Nat. ord.*, Orchidaceæ.—"The terrestrial Orchids of Australia, though celebrated both for their beauty and singularity, have rarely been flowered in this country, and more rarely kept after flowering. Amongst those who have achieved success in the culture of one kind at least is Mr. Williams of the Victoria and Paradise Nurseries, who in January last flowered a large stock of this very remarkable species. In repose the lip hangs forward against the cleft between the united lateral sepals, but on being irritated at its base it springs up and becomes embraced as it were by the projecting wings of the column, and is thus brought almost in contact with the anther. An insect entering or falling into the base of the flower irritates the lip, which catches it between its face and the column, and in its struggle to escape the insect passes upwards over the stigma, and sweeps away the pollin-masses. These it may take to other flowers, when the same process results in a portion of the pollen being retained on the stigma. Mr. Fitzgerald, who observed the process on a many-flowered species of the genus, remarks that notwithstanding the complexity of the arrangement, very few flowers comparatively seemed to be fertilised. *P. Baptistii* is a native of the neighbourhood of Sydney, where it was found in a 'tea-tree' swamp by Mr. Baptist, and transferred by him to his nursery gardens."—(*Ibid.*, t. 6351.)

XIPHIUM PLANIFOLIUM. *Nat. ord.*, Iridaceæ.—"This is a most peculiar and unique Irid. It has very large, generally single, delicate lilac flowers, that rise without any stem from the centre of a number of leaves, the showy part of the flower being made up of the large stigmas and large outer segments of the perianth, the three inner segments being very small and spreading from the top of the long perianth-tube. It is widely spread through the south of Europe, extending from Portugal to Sicily, and reappearing across the Mediterranean. As it flowers from September to January it can only be satisfactorily grown in England under cover, and lately it has been imported and sold in considerable quantity to be grown in coloured glasses on mantelpieces and in windows, like Hyacinths. It has been known to botanists for the last two hundred years, and there is perhaps hardly any other bulbous plant that has received so many different names, as it has had six different specific names, and the small group of bulbous Irises to which it belongs has been characterised as a genus five times by as many different authorities."—(*Ibid.*, t. 6352.)

EXPERIMENTS WITH SCARLET RUNNER BEANS.

MY soil being rather light and not exactly suited to the growth of the Scarlet Runner Beans, and the climate in spring being cold, they did not always succeed very well here. I thought I would try a few experiments to see if more satisfactory results could be obtained by alterations in the mode of cultivation:

In March, 1873, I selected a rather sheltered place in the garden, and had two trenches dug across the border, and some well-decayed manure put at the bottom as though intended for Celery and otherwise prepared, and at the beginning of April I had one trench planted with Scarlet Runner Beans, and on the same day I had some Beans sown in a box and started in a cool vinery. Those in the vinery soon came up, and before long were in danger of getting too much drawn up if allowed to remain in the house; I therefore had them moved outside with the protection of a handglass, and there they remained for some time. When the weather became decidedly fine at the end of April I had the Beans in the box planted-out in the other trench.

During the month of May the Beans in both trenches were protected at night by having some sticks driven in on each side of the trench and mats or some other covering thrown over every night. There was much frost that year in May, and the covering had to be persevered in; and when all danger was over from frost dry weather followed, which rendered it necessary to give a good soak of water in the trenches sometimes; but the Beans grew and flourished wonderfully and produced an abundant crop, which supplied the wants of a large family from the middle of July until the first week in November, and were considered the two best rows in the neighbourhood.

In 1874 the experiment was repeated in exactly the same manner and on the same ground. There was no frost to speak of in May that year, and consequently very little trouble in protecting the Beans, and no watering required in spring. The Beans flourished very well and became two very good rows of Scarlet Runners, and the produce was very fair but not quite equal to that of the previous year, the long period of dry weather at the end of the summer shortening the produce in the autumn.

In the following year, 1875, the experiments were continued with very satisfactory results, and have been so continued every year to the present time and always on the same ground. I will now make a few general remarks. There is not much difference generally between the transplanted row and the other. The former is generally about two or three days earlier, and the lower part of the plant comes into blossom rather earlier. I at one time came to the conclusion that there was no particular advantage in raising the plants in the vinery, and both rows might be planted outside; but subsequent experience showed this to be wrong, for last year the seed in the vinery failed, and I did not re-sow, trusting to the row outside, but that also failed, as I subsequently discovered in consequence of the seed having been kept in too warm a place, and I had to plant again, which threw me a few days behind my neighbours instead of being a few days before them. Anyone having a cool vinery or other glass available I would recommend to make use of it, and then they will be sure of their plants, because if the seed is good the Beans very soon come up and there is ample time to plant again if necessary. Anyone following this method of planting must be prepared to afford protection during the month of May. Small angular frames, or Acme frames, are very good for this purpose, but they should be taken off every fine day and put over again at night. This may appear rather a trouble, but if the garden is close at hand and the uncovering done every morning directly after breakfast it comes as a matter of course. Fir branches I daresay might answer the purpose, and the Beans being in a trench rather below the surface of the soil renders the protection easier. One year I had some old window-blinds as a covering, and they answered admirably.

One thing I ought to call attention to: I have mentioned the end of April as the time for transplanting the Beans from the box, but it is only done then in case the weather is genial; if it is not it is delayed until the weather is more favourable, but never later than the 12th of May, which is the time people generally plant Scarlet Runner Beans here, and if you put in well-established plants instead of Beans it gives you a considerable start, and the earliness is not the only advantage—you have a larger crop from the same space of ground.

In cases where the soil is strong or a good loam trenches need not be made, or very shallow ones, but a little manure forked in the rows before planting would be of service. I intend now the first opportunity to begin throwing-out the trenches for the sixth crop on the same land.—*AMATEUR, Cirencester.*

WALLFLOWERS.

"WHY write about Wallflowers now, since it is quite too late for transplanting them and the plants are just commencing flowering?" That is a very natural question, and likely to be asked by those who estimate, and rightly so, the value of an article in the Journal in proportion as it is seasonable—that is, appearing at a time and in a form to be useful.

It is always more or less disappointing to readers thirsting for information to find a communication admirable in itself but written two months too late to be of real service until another year. For instance, it is not consoling to read excellent instructions in February on the cultivation of a particular crop which we are told must be raised from seed sown in the autumn, or to find information given in October that such a plant to be grown successfully must be raised from cuttings inserted in August. However sound the practice may be that is detailed, and however ably an article is written, it cannot fail to be much less acceptable to the majority of readers if it appears at an unseasonable time.

I write on Wallflowers now, even if they are just expanding their flowers, and notwithstanding that it is too late for transplanting them, because to have them in the finest condition as early in the year as possible the seed must be sown or the cuttings must be inserted as nearly as possible a year previously—that is, if a grand display is required to commence in March,

1879, the seed must be sown in March, 1878. I submit, therefore, that my notes on this sweet and cheerful hardy flower are at the least seasonable.

No one who has not seen the common single Wallflower, as represented by the dwarf dark red and compact golden yellow varieties as grown when raised from seed sown early and the plants having been timely and sufficiently thinly planted, can form any idea of the real value and beauty of this charming simple flower. Too often the seed is sown in June or July at the same time that seeds of Sweet Williams, Canterbury Bells, &c., are sown, but that is altogether too late for producing satisfactory plants of Wallflowers. When late sowing is practised the plants have to be grown as rapidly as possible in rich soil to enable them to attain a fair size before winter. That practice is decidedly wrong, for such plants are so tender and succulent in their nature that many of them are killed when severe frost ensues, and if they are not killed they cannot flower early, and unless they do this more than half of their value is lost. The seed of Wallflowers should be sown at the same time that Onion seed is sown, and in the same manner. The plants have then a long period for growth before them; and if they are planted in firm ground and in an exposed situation they will be dwarf, stubby, woody, and hardy, and will commence flowering in the earliest days of spring.

The seed should be sown very thinly, and be covered about a quarter of an inch deep with light soil. When the seedlings are large enough to be handled they should be transplanted 4 to 6 inches apart in nursery beds, and as soon as the foliage meets in the rows the plants should be replanted not less than 15 inches apart in firm and not over-rich soil in the most sunny and exposed situation at command. They seldom or ever require to be watered. When established pinch out the tops about 4 inches from the ground; they will require no further stopping, and only need to be kept scrupulously free from weeds to enable plants being produced by the autumn more than a foot across and about 9 inches high or less, and with foliage resting on the ground.

Such plants are very valuable for filling vacant beds in the winter and for planting in lines on borders, also for intermixing with dwarf shrubs in the marginal borders of pleasure grounds. Wallflowers are everybody's plants. They brighten and cheer the homes of cottagers and suburban residents, and they are worthy of being grown by thousands in the gardens of dukes; indeed they are so grown at Belvoir, Cliveden, and other notable gardens. It is a little surprising that plants so easily raised, and which are always so much admired when well grown, are not more extensively cultivated in public parks, gardens, and cemeteries; but perhaps the managers of such places have enough to do to provide plants for summer bedding, which they usually carry out so creditably.

Wallflowers are so bright and cheerful when flowering in masses, so fragrant and welcome, the seed is so cheap, and the cultivation of the plants so simple, that a plea for their extended culture at this the time for providing a stock may perhaps be deemed worthy of a place in your columns. I will allude to raising double varieties from cuttings on a future occasion.—A SPRING GARDENER.

THE BOTANIC GARDENS, KEW.

ALTHOUGH there may have been some rule in existence by which those identified with the objects which this garden was established to promote might have admission to the gardens previous to the recognised hour of opening, I think it very probable that few were cognisant of the fact made known in your last issue on page 200, and ratified by the authority of Sir Joseph Hooker on page 209. It may be taken for granted that the facilities extended to botanical students and professional gardeners will be highly appreciated, and Kew will not only be rendered more popular than before but more useful.

Having to visit Kew Gardens occasionally I have more than once experienced the courtesy of the officials in charge there by being readily admitted before one o'clock on the presentation of my card. Although I do not enjoy the personal acquaintance of either the Director, Curator, or anyone in authority, I can say that never have I experienced the slightest difficulty in gaining entrance as soon as my object was known. It is true that when I was admitted before the stipulated time I felt as if it was on sufferance, and that I was every time receiving a favour and not exercising a right, and consequently I attended as seldom as possible, and not so often as my re-

quirements demanded. Now that I feel I have the right of entrance before one o'clock the pleasure of a visit will be greatly enhanced. But before exercising the privilege officially accorded me I desire to join in the expression of acknowledgment which I feel you have justly recorded of the uniform courtesy of the officials of the gardens. I also wish to acknowledge the civility of the *employés* and their readiness to give any information in their power by not only answering questions promptly, but, what is always appreciated, pleasantly. I have visited many gardens public and private both in this and other countries, but I have never found one so replete with instruction on matters botanical and horticultural as this great and excellently conducted establishment. To make it a place of popular resort—a mere pleasure garden, open to all comers from morning till night, would simply destroy the high character that it enjoys as the head quarters of scientific horticulture in this country.—EAST ANGLIAN.

CAPE HEATHS.—No. 3.

MARCH.

THE pots and soil having been duly prepared we next come to repotting, and in this matter care and attention are



Fig. 34.—*Erica colorans superba*.

necessary. Never allow Heaths as young plants to become pot, or, to use a better expression, root-bound; yet we do not appreciate the one-shift system, but would warn the amateur against giving the plants too large a shift, for when this is done the soil is very apt to become washed out or sour before the roots can occupy it, and in the second place the effect of overpotted plants is most unsightly; therefore we say by all means let the shift be such as will allow of a moderate amount of soil to be added. The roots of *Ericas* should be disturbed as little as possible, but the old drainage should always be removed. In potting it must be remembered that the firmer the new soil is made the better; indeed, loose potting, such as that adopted for softwooded plants, is sure death to Heaths. There has been much controversy respecting

the proper season of the year for repotting, and our experience goes to prove that the spring is by far the best time, and the middle of summer the worst. We have potted with satisfactory results in autumn, but, as before remarked, the spring—that is, during the end of March and month of April—we prefer to any other time. These plants do not require periodical potting, and large specimens may be kept many years in the same soil and pot in perfect health if proper attention is bestowed upon them in the matters of air, temperature, and water.

The following are some of the best kinds which serve to keep the greenhouse gay at this season :—

E. andromedæiflora.—An arborescent species of great beauty. Leaves arranged in threes, subulate, incurved and acute, deep green. Flowers nearly terminal, nodding, and springing from the axils of the leaves, globose, thick, and wax-like in texture, delicate flesh-colour throughout. (See fig. 33, page 223.)

E. andromedæiflora alba.—A variety with pure white flowers, extremely beautiful.

E. andromedæiflora rosea.—This variety is scarcely so robust in growth as either of the preceding, and differs from the normal form in having the corolla suffused with rich rosy red.

E. colorans superba.—A shrubby erect-growing softwooded kind, having linear obtuse downy light green leaves arranged in fours. Flowers produced in clusters towards the ends of the branches, and forming dense racemes of tubular bell-shaped pendulous blooms, which are pure white in a young state, but change with age to rose colour.

E. ignescens.—This is a showy free-flowering plant. Leaves linear, smooth, dark green, and arranged in fours. Flowers club-shaped, solitary, and terminal, bright reddish scarlet in colour.

E. regerminans.—A twiggy, compact, softwooded plant of free growth. Leaves arranged in fours, linear, obtuse, and dark green. Flowers small, bell-shaped, produced in clusters at the ends of all the branches, pale purple in colour, and sweet-scented.

E. fastigiata.—Leaves arranged in fours, linear, smooth, and deep green. Flowers also arranged in fours, terminal, swollen at the base, and pure white.

E. Linneæana superba.—A robust-growing variety of great beauty. Leaves arranged in threes, linear, obtuse, and villous. Flowers large, tubular, hirsute, terminal on the small branches, forming long dense racemes; lower portion of tube rosy purple, mouth white.

E. canaliculata.—Leaves arranged in threes, linear, obtuse, plain above, channelled below, and deep green; the footstalks long and coloured. Flowers nodding, bell-shaped, arranged in threes at the ends of the small branches, pale purple in colour.

E. canaliculata minor.—As the name implies, this is a smaller plant than the preceding, as also are the flowers, which, however, are deeper in colour than the type. It is a desirable neat-growing much-branched plant, possessing great beauty.

E. pedunculata.—A handsome plant, having linear, obtuse, hairy, deep green leaves. Flowers rosy purple, nodding, ovate, supported upon long coloured footstalks, and produced in terminal umbels.

E. campanulata.—An elegant slender-growing plant. Leaves subulate, smooth, and arranged in fours, light green. Flowers pendant, usually solitary, bell-shaped, and clear yellow. (See fig. 35.)

E. persoluta.—Leaves linear, obtuse, light green. Flowers small, bell-shaped, produced in great profusion upon all the small branches, and forming long and dense racemes of a deep bluish colour. There are two varieties of this plant—viz., *alba* and *rubra*, the former producing pure white, and the latter deep red flowers.—W. H. G.

BLUE FLOWERS FOR BEDDING.

WE are now very rich in blue-flowered plants for bedding purposes. The following is considered a good selection. Commencing with very light shades there is *Countess of Stair Ageratum*, rather washy-looking but distinct. Of a darker shade, much like the old dwarf *Lobelia pumila grandiflora*, is a seedling *Ageratum*. I have grown it two years, and I am again testing it this season; it is of a low spreading habit, averaging 4 or 5 inches in height. *Lobelia magnifica* is one of the best I have grown. *Lobelia St. Martin's Blue* of last year's introduction I think likely to hold a high position; I shall plant over a thousand of it this year. Indispensable plants are some of the *Violas*. Perfection is still one of the best;

Duchess of Sutherland, a bluish mauve, is being tried this year; *Admiration*, one of the darkest, inclining to violet, is also on trial; both are thought very much of. *Purple King* *Verbena* is one of the finest of bedding plants, and for large beds or broad masses in borders nothing can outlive *Verbena venosa*. These can be one and all highly recommended as good in the particular shades they represent, and selections may be made from them according to the requirements of your readers.—R. P. B., *Tynninghame*.

JUDGING ROSES.

[Written by W. Wilson Saunders, Esq., F.R.S., and read on March 5th, 1878, before the General Committee of the National Rose Society.]

FOR exhibition purposes the character and capabilities of the Rose seem to be well understood, seeing the numerous



Fig. 35.—*Erica campanulata*.

beautiful examples of good flowers which are constantly brought forward at the various exhibitions held throughout the country. I have thought, however, that the rules which should guide the judges in forming an opinion of the Rose as a show flower not sufficiently determined and not considered as they ought to be, and that it would be well for the National Rose Society carefully to go into the subject, and to form a code of plain rules for the guidance of the judges appointed at the shows held by the Association.

A first-rate show Rose, according to my views, should have the following qualities :—1, Large size; 2, Good shape; 3, Petals well formed and arranged; 4, Colour or colours good and clear; 5, A perfume strong and agreeable. Of these five qualities I place—

1st, The size, for I think it evident that, all other qualities being satisfactory, the larger surface we have to rest the eye upon the better.

2nd, The shape must be considered as a very essential character, whether it be cupped—that is to say, with petals more or less erect; or globular, with petals more or less incurved; or expanded, with petals more or less horizontal. Of these shapes I prefer the cupped, as then there is a fair view of both sides of the petals, while in the globular we see

chiefly the outside of the petals, and in the expanded chiefly the inside of the same.

3rd, The character of the petals should be carefully observed, and they should be well formed, of good substance, and symmetrically arranged from the circumference to the centre, well filling up the central area, and having the outer range of petals—which may be called the guard petals—large, broad, well shaped, and well coloured; these guard petals being so apparent in the cupped and globular-shaped Roses.

4th, Colour is a quality which will find admirers, whether it be pale or brilliant, provided it be good and pure of its tint. No Roses with dull colours, or run colours, or partly faded colours should be admitted as first-rate show flowers.

5th, Perfume, which has been sadly neglected in show varieties of the Rose, should now be insisted upon, and that it should be strong and agreeable. There are numerous good Roses which can be exhibited with fine perfume, and these should have the preference, the other qualities being satisfactory.

So far as regards show Roses; but the Rose for decorative purposes, whether in the garden or elsewhere, is I think at the present time more worthy of consideration, and here the subject of the Rose as a show and decorative flower much widens out, and we must look to the future for varieties which will come up to the standard of excellence which I shall endeavour to point out. If we look to the species and varieties of the Rose which are growing in our English gardens at present we shall find kinds having one or more of the following qualities:—1, Good and nearly perfect flowers; 2, flowering the whole summer and winter; 3, with good evergreen leaves; 4, having a bushy or trailing habit of growth; 5, constitution in every respect hardy; 6, growing well on their own roots. Here, then, is what we have to work with to build up an ideal standard-of-excellence Rose, and this Rose should in my view have at least the following qualities:—

1, The flowers should be good and perfect, whether double or single; if double, with the qualities I have pointed out for show Roses; if single, well and regularly formed, large, and lasting.

2, The flowers should be produced from spring to autumn without intermission.

3, The plants should have numerous evergreen leaves of good size.

4, The plants should have a bushy or trailing habit of growth, so as to be useful for covering walls, trelliswork, poles, &c.

5, The plants should have a good constitution, be free growers on any fair soil, and be capable of bearing our severest winters without injury.

6, The plants should grow freely on their own roots.

In all this I am looking for a combination of qualities which are not now to be found in any Rose under cultivation, and must be obtained by judicious and patient crossing of the various varieties or species at the command of horticulturists. The ideal Rose of excellence I have ventured to sketch out I am fully aware will be very difficult to obtain, and probably a long time will elapse before we see it; but I do not in the least despair of its being produced hereafter, knowing the intelligence, zeal, and energy of our horticulturists, and what they can bring to pass if they set earnestly about it.

How the National Rose Association can best assist in bringing about a really good decorative Rose I do not clearly see, but I think good prizes might be offered for Roses having as many of the qualities I have mentioned as can be from time to time produced in the same variety. I know of no flower so generally a favourite as the Rose, and none in which I take so much interest or wish to see progress so as to be still the flower of flowers in the estimation of the public, and therefore I sincerely hope the National Rose Association will see some way of breaking up new ground in the field of Roses by encouraging new and approved varieties tending towards a perfect decorative Rose.

THE LAST OF THE OAKS OF BIRNAM.

BIRNAM has been rendered classic ground by the immortal Shakespeare, and in ancient times formed part of the Royal Forests of Scotland, being then covered with a vast forest of Oak and probably Scotch Fir. The "last Oaks" are, according to tradition, remnants of this ancient forest, and must at this date be close upon one thousand years old. These venerable monarchs are three in number, consisting of two Oaks and a Plane (Sycamore). One Oak and the Plane are growing

close to the river Tay on the south bank, and immediately behind the Birnam Hotel, and about 800 yards east of Dunkeld Bridge. On account of their remarkable antiquity they are objects of great interest to the numerous tourists and others who frequent this romantic and picturesque neighbourhood.

The girth of the Oak at 5 feet from the ground is 18 feet, and that of the Plane, which stands 80 feet west of the Oak, is 19 feet 8 inches. When the celebrated traveller Dr. E. D. Clarke visited Dunkeld early in the present century he examined and measured these grand old trees, and seems to have been so impressed with their gigantic proportions and enchanted by their magnificent surroundings that I cannot do better than quote his remarks—"To enrich this noble scene the finest trees are seen flourishing with the greatest redundancy. How weak and groundless are the expressions of Johnson respecting Scotland and its timber, where one beholds this luxuriant valley proudly decorated with majestic Oaks, Sycamores, Limes, Beeches, Maples, and all the glories of the forest! I measured a single Oak close to the ferry, and found it to be 17 feet in girth, and near it stood a Sycamore of much greater magnitude." It will be seen by these measurements that the Oak has only added a foot to its girth in about seventy years. The next Oak of interest, which is said to be of the same age, is growing two miles to the south-east of the latter two trees, and is 10 feet 4 inches in girth, with a high and wide-spreading head. It is called the Hangedmen's Tree, and was used in olden times by the lords of Murthly for hanging thereon thieves and other offenders against the laws; hence the name. In the year 1094 King Duncan had his camp about half a mile from where this tree stands, and also held courts of justice on a small hill to the south-west of it. Some even assert that he also hanged his miscreants on this very tree. The whole of these trees lay in the line of march of the English army, who came under the command of Gerard Earl of Northumberland to place Malcolm on the Scottish throne instead of Macbeth, and branches may have been taken from off these identical trees to disguise the army when on its way from Dunkeld ferry (whither they went to meet allies from the north) to Dunsinane Hill, the stronghold of Macbeth. The witches, whom he regularly consulted, had advised him to fortify this hill, and here they promised him perfect security until "Great Birnam Wood should come there against him"—

"Be lion-mettled, proud, and take no care
Who chafes, who frets, or where conspirers are;
Macbeth shall never vanquish'd be until
Great Birnam Wood to high Dunsinane Hill
Shall come against him.

Macbeth. That can never be:
Who can impress the forest, bid the tree
Unfix the earth-bound roots?"—SHAKESPEARE.

It is further stated that the Sycamore and Oak were planted for the lord and lady of Murthly to tie their ponies to while they attended worship in St. Jerome's chapel, which was situated on the top of a small knoll on the north side of the Tay. Twenty years ago the descendant of the celebrated fiddler, Neil Gow, told me that while Neil (who was passionately fond of Highland whisky) was away on the hill of Birnam at a drinking and fiddling bout in some of the smuggling bothies which then existed, the night turned out very stormy, and Neil could not find his way home, but stayed till a late hour in the morning in the bothy. He at last ventured out and made for the ferry, but on account of the storm the ferryman, who lived upon the opposite bank, could not hear him, so Neil sat down at the foot of the Oak above referred to, and slept so soundly under the soothing influence of the "mountain dew" that he was only awakened by the river, which had risen rapidly, rushing over his legs, and was almost swept away by the rising flood. Surprised and thoroughly aroused by his dangerous position, he was quickly brought to his senses, when he found that he had missed his way and was at the wrong ferry! As soon as he got home he is said to have composed the famous tune, "Neil Gow's Farewell to Whisky." So said his friend. Be this as it may, both the locality and the trees are worthy of a visit by those who have the time at their command.—D. MCKENZIE (in *Journal of Forestry*).

AN AMERICAN COFFEE PLANTATION.—The *Prairie Farmer* describes this as follows:—"Coffee culture is very interesting and the growing crop is very beautiful. The trees at maturity are from 5 to 8 feet high; they are well-shaped and bushy, with a glossy dark green foliage, and planted 8 or 9 feet apart. The flowers are in clusters at the base of the leaves, and are small, but pure white and very fragrant. The fruit has a rich

colour, and resembles a small Cherry or large Cranberry; it grows in clusters close to the branches, and when it becomes a deep red is ripe and ready to be gathered. The trees are raised from seed, and do not begin to yield until the third year. In Central America they bear well for twelve or fifteen years, although, in exceptional cases, trees twenty years old will yield an abundance of fruit. The tree is particularly beautiful when in full bloom or when laden with ripe fruit."

NOTES ON VILLA AND SUBURBAN GARDENING.

THE weather has been most opportune for forwarding all operations in the flower garden and pleasure grounds. The shrubby borders have been lightly dug, the weeds and remaining dead leaves being carefully buried as the work of digging proceeded. The edges of the beds have also been neatly and uniformly trimmed with an edging-knife, which has given an evenness and tidiness of finish to the whole work.

The pruning of shrubs and thinning-out those that have grown into each other should now be attended to, for all ornamental trees and shrubs should stand out boldly and have their outlines clearly defined. Laurels and such-like fast-growing shrubs that have become naked at the bottoms should be cut well down, and in the course of a season or two they will be plentifully furnished with young and vigorous shoots. Look over all newly-planted trees and shrubs, for the winds may have caused them to become loose in the soil, in which case the roots must be firmed, and the shrubs, &c., be securely staked. Lawns or grass plots should now be mown. In most places the grass has been steadily growing the whole of the past winter, and it may be necessary to first cut it with the scythe, finishing it off with the machine. Where lawns are patchy let grass seeds be sown in showery weather, there is then more certainty of a speedier germination.

Gravel walks also now require attention. Where the gravel still remains clean and good frequently rolling it is all that can be done, but where moss and other small weeds have accumulated on the surface, the walks should be broken-up with a fork and the moss and weeds be raked off. If the gravel is well rolled with a heavy roller the walks will soon be firm and bright again. In some cases it will be necessary to give a slight covering of new gravel before rolling. Loose walks are unsightly and unpleasant to walk upon, therefore if possible purchase gravel with good binding properties. See also that the drainage of the walks is good. Ample means should always be provided for carrying off the surface water as it falls, particularly after heavy thunderstorms. Gratings should be placed at convenient intervals with deep pans under them for collecting the sand which is brought from the walks by the force of the rains. See that these catch-traps are free from sand, otherwise the drains will be choked sooner or later.

Rhododendrons are well set with flower buds, and some varieties of *Nobleanum* have been in bloom for a considerable period—an instance of the remarkable mildness of the past winter. *R. præcox* and *Early Gem* are also very showy and deserve more general cultivation. We plant numbers of *Gladioluses* amongst our *Rhododendrons*. Now is a good time to plant the corms, also bulbs of *Lilium auratum*. These tall slender-growing plants tower-up above the *Rhododendrons*, and contrast effectually with their fine glossy foliage. *Laurustinuses* are also now very conspicuous; their large masses of snowy-white flowers are indeed grand. *Berberis Darwinii* is also very showy and ought to be in the most limited collections. *Hyacinths* in the open borders are now in almost full bloom and should have supports attached or the wind will snap them off.

Continue inserting cuttings of all dwarf-growing bedding plants that will be required for planting-out for summer decoration. A sweet hotbed and frame will enable large numbers of *Coleuses*, *Iresines*, *Alternantheras*, *Ageratums*, *Lobelias*, *Verbenas*, *Petunias*, &c., being provided. Apply linings of hot manure when necessary to prevent the temperature falling below 65° at night. Cucumbers may be planted in the centre of each light, which will not seriously interfere with the cuttings, and the Cucumber plants will in due time occupy the whole of the frame profitably. Where large quantities of *Alternantheras* are required it is a very good plan to make up a moderate hotbed, place a frame over it, give a covering of a few inches of light sandy soil, insert the cuttings regularly all over this bed, and when struck gradually harden them off. They can be lifted readily with a trowel without receiving the least check; the rootlets of the plants cling to small particles of the manure, and the plants are transferred to the open ground with the greatest ease.

Seed of *Balsams*, *Amaranthuses*, *Ipomæas*, *Thunbergias*, *Primulas*, *Ricinus*, *Nicotianas*, *Cannas*, &c., should now be sown and placed in the frame. *Lobelias*, *Ageratums*, and the *Golden Feverfew* can also be raised in quantity from seed in the same way, pricking-out the seedlings in pots or boxes as soon as large enough to be handled.

It is now about the best time of the whole year for repotting almost all plants requiring a shift. Most plants thrive best in

clean pots, and apart from this the plants will turn out of the pots better and easier when they are again shifted than when they have been placed in dirty pots. *Camellias* when in full flower should be liberally watered with weak liquid manure, and as soon as flowering is over the plants should be removed to a warmer structure, such as a vinery at work, to make new growth and to set their flower buds. The sooner the new growths are formed and the wood becomes matured the earlier will be the supply of blooms another season. The same remarks will apply to *Azaleas*, which should be well syringed to keep down thrips, &c.

Roses in pots that were started a few weeks since will now be sufficiently strong for training into shape. Some small willow sticks are the neatest and best for this purpose. Rub off all weakly shoots from the Roses, and secure the others to the sticks, allowing a fair space for the expansion of the flower buds and for admitting air through the plants. Give occasional doses of liquid manure; soot water is excellent for imparting colour to the foliage and blooms. Bring the plants on very gradually if fine flowers are desired, but at the same time do not admit large currents of cold air, or mildew will be sure to attack the foliage.

WORK FOR THE WEEK.

KITCHEN GARDEN.

HORSERADISH is one of the most neglected of kitchen-garden crops. It is often found in some out-of-the-way corner and is allowed to grow into a mass, the supply being had by taking up a root here or there, which is about all the thinning or management the plants receive from year to year. It is little use attempting to grow this useful root upon the no-principle system. It likes moderately light rich soil, deep and moist but freed from stagnant water. Vegetable refuse is the best application that can be given to the soil for this crop, indeed it succeeds admirably in vegetable refuse alone; but as a large bulk of that material may not be available a portion may be mixed with manure and trenched into the soil. A portion of the crop should be taken up at this time by trenching the ground and clearing it of all roots, selecting those fit for use, which should be laid in behind a north wall, retaining the small clean pieces of 18 inches in length for planting, rejecting all the rest. Plant in rows 18 inches apart and 9 inches asunder in the rows, the entire length of the root being inserted. It will be very fine in two years, and better in one year than the hard woody sticks had in half a dozen years upon the haphazard system. Make a sowing of Savoy—Large Drumhead, Green Curled, and Early Elm, the latter coming in very early in autumn; also Cauliflowers, Brussels Sprouts, and Veitch's Self-protecting Autumn Broccoli, of which we had good heads until the end of February. Plant without delay early Potatoes. We allow 2 feet 6 inches to 3 feet between the rows, and plant between them, after the Potatoes are earthed, Broccoli, Cauliflowers, Savoy, Borecole, or Cabbage for autumn and early winter use. Only the early and dwarf sorts of Potatoes should be grown in gardens.

Forcing Department.—Cauliflowers, Brussels Sprouts, and Lettuces sown early under glass should have gentle waterings and have air freely admitted, being gradually hardened off preparatory to being planted out. Prick out into boxes or frames Celery for the main early crop: the soil can hardly be too rich. Admit air freely to Radishes, Lettuces, Carrots, Potatoes, &c., in frames, watering the crops as required, attending to timely thinning, and earthing the Potatoes as they advance in growth. Tomatoes, which will now be strong in 7-inch pots, may be shifted into the fruiting pots. We grow our earliest crops in 10-inch pots and feed the plants with liquid manure. The drainage should be good, and for compost employ turfy loam with a third of well-decayed dung. Pot firmly, which induces sturdy growth. Place the plants in a light airy situation. A suitable temperature is 60° to 55° at night, with 10° to 15° advance by day, and more from sun heat. Pot off those sown a short time ago, growing them on so as to have strong plants in 6 or 7-inch pots by planting-out time in May. Pot off Capsicums when they show the second leaves, placing three plants in a 3-inch pot, and be careful not to over-water them. Sow Capsicums now for the main crop. Attend to the sowing of Mustard and Cress, introducing fresh roots of Mint and Tarragon, and maintaining the succession of Asparagus by the planting of fresh roots in a frame over a very gentle hotbed. Attend to the sowing of French Beans in pits or frames.

HARDY FRUIT GARDEN.

There is a greater difference in the show of blossom buds by fruit trees than we have before observed. The bloom is not very abundant in Apricots, and the Peach and Nectarine trees are not excessively floriferous. Pears are not very promising on the Pear stock, but those on the Quince are masses of expanding buds. There is a plentiful display of fast-swelling Cherry, Plum, and Apple blossom, with a great prospect of bush fruit. Strawberries are swelling the crowns fast, and promise to be very productive. Peach and Nectarine trees even where blossom is sparse should be protected, for the foliage is very tender, and to protect it is of quite as much importance as securing the blossom and young fruit from frost, as upon the healthy unchecked growth of the foliage depends the permanent well-being of the trees. Unprotected trees

invariably have blistered leaves and their concomitant fungus, and the growth is rendered so late that the wood is imperfectly ripened. It is not unusual when there is little prospect of bloom upon a Peach tree shoot to cut it back to a bud at its base. This is an error, as it induces very strong growths, which are seldom fruitful. We prefer pruning barren and fruitful shoots alike, as by so doing undue vigour is not promoted, timely attention being paid to disbudding and stopping of the shoots to equalise the sap. Proceed with the grafting of Apple and Pear trees. Recently planted fruit trees will be the better for having a mulch of partially decayed manure in dry weather after a good watering has been given.

FLOWER GARDEN.

The best season of transplanting evergreens is when they are commencing growth. Every leaf causes rootlets to be formed, and the warm genial rains which usually prevail early in April aid to a speedy re-establishment of the shrubs. Trees and shrubs from nurseries, owing to their frequent transplanting, which induces the formation of fibrous roots, may safely be transplanted when it would be fatal to move plants of considerable size, grown it may be not very distantly apart and not having been prepared for removal. Standard Rose trees often have the stems mossy; scrape them with a blunt instrument, and scrub them well with a hard stiff brush until the bark is clean. Tea-scented Roses may now have the protection removed and be pruned by cutting away entirely the weak branches, leaving only the best situated of the most vigorous shoots, which should be slightly shortened back. Briar, Manetti, and other Rose stocks may still be grafted. Cut back the stocks, leaving only an inch or so of stem. To this attach the graft, tie tightly, and plunge the plants in a close pit with a temperature of 75°, and shade them until they begin to grow, when light must be gradually admitted. They should be grown steadily on, hardening them off for planting-out at the close of May or early June. Some prefer Roses on their own roots. Those that have been forced and going out of bloom will have tolerably firm wood, of which cuttings may be made of two joints, inserting them singly in small pots in light soil, and placing in moist brisk heat. A sowing of hardy annuals may now be made, such as Mignonette, Sweet Peas, Cornflower (*Centaurea Cyanus*), Sweet Sultan, and others useful for cutting liberally.

FRUIT HOUSES.

Vines.—We are convinced that a longer growing period than is given to late varieties that have to hang through the winter would greatly improve their keeping qualities. Grapes not infrequently shrink after keeping a time, which would be prevented by starting the Vines earlier so as to have both fruit and wood thoroughly ripened. Start late houses without delay, syringing the rods several times a day, and damping the house well every evening. Attend to disbudding, tying-down, stopping, and thinning. Delay in the performance of the operations is to a greater or lesser degree injurious to the Vines. One of the greatest evils in Grape culture is overcrowding. The proprietor and cultivator both desire a great weight of fruit. Avoid that; thin well not only the berries but the bunches, for what is lost in number will be gained in size of berry, superior finish, and quality. Where there is space do not pinch-in too closely, but avoid overcrowding of the foliage. It is better to pinch to one joint beyond the fruit than to leave the shoots longer and crowd the foliage, for the value of foliage depends upon its exposure to light. Be careful in tying down the shoots, when growing vigorously they are liable to snap. Go over them frequently and bring them down by degrees. Young Vines that were cut back at the winter pruning to the bottom of the rafters should have the laterals stopped, but not too closely, so far up the canes as it is proposed to cut them back to in winter, say 3 to 6 feet, but all above that may be allowed to grow at will to promote the formation of roots. The stopping of the laterals will tend to the development of the eyes and the ripening of the wood. Where Grapes are ripening a free circulation of air is essential to good colour and finish, and a comparatively dry atmosphere; but we sprinkle all available surfaces twice a day, so that the drier atmosphere is obtained by freer ventilation. See that the border is duly watered in all stages of growth, particularly when the fruit is swelling, keeping up a good atmospheric moisture by damping two or three times a day, and especially at closing time, with liquid manure. Liquid manure materially assists Grapes which have passed the stoning process, applying it at a temperature of 90°. Admit air in moderation, small quantities at a time, making the most of sun heat by early closing.

Peaches and Nectarines.—When the fruit is stoning avoid sudden changes of temperature, sudden draughts of cold air are injurious. Maintaining the temperature at 65° to 60° at night, and 70° to 75° by day, admitting a little air at 65°, increasing with the temperature, closing at 75°. Attend to disbudding and tying-in the shoots, being careful not to overcrowd them, thinning the fruit, syringing the trees morning and afternoon to keep red spider in check, except when the trees are in flower. Distribute the pollen with a camel-hair brush unless bees are active, when they will do it much better than can be effected by any brush or shaking of the trees. Do not allow the border to lack moisture,

as this is a sure means of having plenty of red spider. Fumigate upon the first appearance of aphid.

Cucumbers.—Maintain a brisk growing temperature, syringing twice a day, keeping the evaporation troughs filled with liquid manure, being liberal also in the application of liquid manure to the roots of plants in bearing. Attend to stopping, thinning the shoots, &c., frequently. Plants some time in bearing may have the bed renovated by removing with a small fork any exhausted soil without injuring the roots, replacing with rich fresh soil previously warmed. Young plants require attention by timely training over the trellis, avoiding overcrowding of the foliage. A little fresh soil should be added to the sides of the ridge as the roots show, repeating the practice until the root space is filled with soil. Cucumbers in frames should have the linings frequently attended to, having always at hand prepared fermenting material for that purpose and for the making of fresh beds as required.

Melons.—The earliest plants will be showing fruit. The atmosphere should be kept rather drier. Impregnate the flowers in the early part of fine days, stopping the shoots one joint beyond the fruit, being particular to have all the blossoms upon a plant operated upon at the same time, so that they may set and swell together. Soil must be added to the sides of the ridge or hillocks as the roots show at the sides both to plants in houses and in frames. We are careful to secure four shoots to each plant in frames, two being trained to the front, the others to the back, rubbing off all besides when quite young, stopping the principal shoots at 6 inches from the sides of the frame. The fruit shows upon the side shoots or laterals. A brisk bottom heat and rather dry atmosphere are essential to a good set. A little air left on at night prevents moisture condensing upon the blossom, which is injurious. Attend to the lining, making fresh beds, potting off young plants, and sowing seed for succession.

PLANT HOUSES.

Stove.—It is fatal to the flowering of Allamandas, Stephanotis, and other climbers trained to balloon or other trellises to keep the shoots closely trained down as they grow. The shoots of Stephanotis should be allowed to run up strings of small twine stretched near the glass until the trusses of bloom are nearly expanded, when the growths may be tied to the trellis; and Allamandas, Bougainvilleas should be allowed to grow until the bloom is set. Some cultivators make a practice of stopping Allamandas, but though it answers well for the moderate growers, such as *A. grandiflora* and those suited to growing in bush form, it is not suited to those making long shoots, it being better to tie-in the long shoots with their points slightly lower than their base. This will cause them to push fresh shoots freely, which will produce flowers. *Hoya imperialis* should, when it shows the flowers, be kept rather drier, the syringe being withheld, or the flowers will probably drop. Similar remarks apply to *Cyrtoceras reflexa* and *Hoya bella*. Poinsettias that have had a season of rest cut back rather closely, placing them in a growing atmosphere, and when they break shake out and repot them. The increased solar light and heat will cause greater evaporation; therefore maintain a good moisture by frequent sprinklings, syringing overhead twice daily, but syringe early in the afternoon, so as to have the foliage dry before nightfall. Keep a strict look-out for insects, which increase rapidly with the increased temperature. Insert more cuttings of *Euphorbia jacquiniiflora*, potting off those already struck; also *Gardenias*, *Allamanda*, *Tabernaemontana*, &c. Do not allow the roots to be matted before potting off, and on the other hand not potting off until well rooted.

Orchids.—Lengthened days render an increase of temperature necessary and increased moisture. The floors, &c., should be damped early in the morning, the pots, blocks, and baskets syringed, the evaporation troughs filled with water, damping the floors in the afternoon and in the evening of fine days. *Calanthe vestita* shake out of the old soil and cut away the dead roots. Three parts of peat, and one part of turfy loam and old cow dung, with a sprinkling of silver sand, will grow it well. When the plants commence growth water freely, never allowing them to become dry until the growth is complete. *Calanthe Veitchi* is one of the finest winter-flowering Orchids. *Dendrobiums* showing signs of growth and requiring fresh baskets or pots should be promptly attended to. *Pleiones* growing freely will require abundant water at the roots, but be careful in syringing overhead. *Sobralias* repot, and *Anguloas*. Gradually increase the moisture in all the houses now that many plants are pushing new growths and spikes. See that the shading is in good order, using it when the sun's rays are powerful, thereby maintaining a more equable moisture. The temperature in the cool house keep at 65° to 50°; Mexican house, 75° to 70° by day, 60° at night; Indian house, 70° by day, advancing 10° from sun heat, 65° at night.

TRADE CATALOGUES RECEIVED.

Charles Turner, Royal Nurseries, Slough.—*General Catalogue of Florists' Flowers.*

Ewing & Co., Eaton, near Norwich.—*List of New Roses for 1878.*

William Cauldwell, Wantage.—*List of Polyanthuses.*

R. Edwards & Son, Moss Spring Nurseries, Nuthall, Nottingham.—*Catalogue of Dahlias.*

James Dickson & Sons, 108, Eastgate Street, Chester.—*Catalogue of Farm Seeds.*

Thomas S. Ware, Hale Farm Nurseries, Tottenham, London.—*Illustrated Catalogue of Choice Hardy Perennials.*

Ellwanger & Barry, Mount Hope Nurseries, Rochester, N.Y.—*Descriptive Catalogue of Roses.*

William Potten, Sissinghurst, Staplehurst, Kent.—*Catalogues of Garden Seeds and Bedding Plants.*

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

SNOWFLAKE POTATO (*Northumbrian*).—We cannot tell you how long the tubers continue in good condition for the table, but we had some early in February of excellent quality. We esteem this variety as being among the best of the American introductions.

MAKING AND PLANTING ASPARAGUS BEDS (*Homer*).—Full directions are given in another column by "A Kitchen Gardener."

GRUBS (*Rosecareen*).—They are the larva of the Daddy-longlegs (*Tipula*), and come from eggs deposited in the soil by the parent insect.

CLEMATIS FOR A WALL (*P. C.*).—Clematis would thrive admirably on a wall facing west, where the sun would reach them about noon every day. Roses, Jasmines, and Honeysuckles would also succeed in the same position.

FIG TREE UNPRODUCTIVE (*Subscriber*).—Your plan of grafting the large unfruitful Fig tree is quite practicable, the best time being in spring as soon as the swelling buds indicate that the sap is in motion, but the scions should be cut off and thrust into the ground before the buds swell. Do not shorten the branches overmuch, but leave plenty of them of such a length that the growth resulting from grafting may be turned to immediate account for the production of fruit. We have no particular method of grafting to recommend; tongue, cleft, or side grafting are equally good for such a free-growing tree as the Fig. We must caution you that there will be considerable risk of the growth of the new kind, whether it be Brown Turkey or any other, soon becoming rampant and comparatively barren unless root-pruning is practised; and we have no doubt your tree might be made to yield fruit plentifully without grafting if you sever all the main roots about 5 feet from the stem, and ram hard a mass of stones or concrete about them so as to confine them, and thus check the formation of gross barren shoots. If the branches are much crowded a moderate thinning is desirable to afford space for the play of light and air among them.

CUTTING-DOWN CAMELLIAS (*P. H., Kendal*).—Provided the plants are in a healthy state and have active roots you may prune their branches to any point desired—we mean, you may cut them as severely as Geraniums are often cut if you wish to do so. If after having been severely pruned the plants are placed in brisk moist heat and are syringed regularly they will push fresh growths from the old wood, even when no buds were visible. Many "leggy" and unsightly Camellias have been converted into close handsome specimens by cutting them down in the manner described; they, however, do not usually flower freely the year following. If you do not require to prune so severely, shorten the branches to the most promising wood buds and place the plants in a moist genial atmosphere, and repeat them when they have made shoots about an inch long. This operation must be performed carefully, as the young flesh roots are extremely liable to receive injury. Remove any sour soil from the roots with a pointed stick, and repot in a compost composed of two parts of light turfy loam, one part of turfy peat, and a sixth part of silver sand. The pots must be clean and be thoroughly drained, a layer of rough clean fibre being placed over the crocks to prevent the soil washing down and choking the drainage. Use the soil moderately moist but not "pasty," and press it in the pots rather firmly, leaving sufficient space at the surface to hold enough water to percolate through the entire mass of soil. The pots should only be just large enough to admit the roots without crushing them, as overpotting is dangerous. Water carefully. Keep the foliage scrupulously clean, and the plants will make rapid growth in a suitable temperature, such as that of a vinery or plant stove.

LAPAGERIA SICKLY (*G. M.*).—We are disposed to attribute the sickly condition of your Lapageria to careless potting, the drainage probably being defective. Turn it out of the pot, shake most of the soil from the roots and repot in a clean small pot, paying especial care to secure efficient drainage. Syringe daily, but avoid much watering till the plant is growing freely, then give regular and copious supplies of water.

WHITE BEDDING PLANTS (*A Subscriber*).—There is yet time to raise a stock of plants by seed of Lobelia The Bride, Clarkia Tom Thumb alba, Viola Vestale, and Ageratum Imperial Dwarf White. Buy cuttings of Cineraria corymbifolia, Centaurea ragusina compacta, Leucophyton Brownii, and Gnaphalium lanatum, and strike them in a heated frame.

CAMELLIA SHEDDING ITS LEAVES (*A Staffordshire Reader*).—The air of the house is probably kept too dry.

WATSONIA CULTURE (*J. C. Barnham*).—When grown in pots they require to be potted three bulbs in a 6 or 7-inch, or five bulbs in a 7 or 8-inch pot, and should be plunged in ashes in a cold pit or frame, or be placed upon a cool moist bottom, withholding water until growth commences, when it should be given moderately at first, increasing the supply with the growth, affording a light and airy situation. No more forcing should be given than that of a pit or cool greenhouse until the plants show for flower, when they

may be forwarded in a slightly higher temperature. Your non-success is to be attributed to the plants being kept in too high a temperature at starting. A vinery is not a suitable place to grow them in, unless it is a cool one and light.

HEATING GREENHOUSE (*J. B.*).—Your proposed method of heating is not satisfactory, as the pipes are all below the boiler you propose to fix to the kitchen range, and as you show in your sketch would not heat more than the water in the boiler, owing to the water not circulating. Any part of the boiler lower than the fire grate will lessen the heating power of the boiler. We should have an "Independent Slow Combustion Boiler" either in the greenhouse itself if you have no outhouse to set it up in, being less costly and very much more satisfactory in result than heating from the kitchen fire. Why not have the boiler in the scullery? The boiler would warm it as well as heat the greenhouse.

FLOWER BED ARRANGEMENT (*An Amateur*).—Oxalis corniculata rubra comes readily from seed, has foliage of a warm brown hue, and makes a pretty dwarf compact mass or a good "ribbon" row. The plant of dwarf compact globular outline is Lobelia pumila grandiflora; another of the same peculiar habit and having rosy lilac flowers is L. pumila Manve Queen. The arrangement of border 1 is excellent, but in No. 2 we should prefer Cerastium next the grass, then the Oxalis, between which and the pink Geranium the pale blue Ageratum Imperial Dwarf should come. It is easily raised from seed. For a damp shaded border like No. 3 we should not venture upon blossom, but depend entirely upon fine-foliated plants; not in this instance, we regret to say, to be raised from seed, but as the border is narrow it may not prove an insuperable obstacle. The row next the grass to be Iresine Herbstedii, deep crimson; next a broad row of the soft grey Gnaphalium lanatum, with a mass of the Iresine behind in the deep central part. The Iresine bears pinching and pegging well, so that the front row can be kept as low as you please. For No. 4 we do not advise an attempt at carpet bedding from seedlings, but should prefer to have the entire bed filled with double Portulaca, consisting either of the crimson Thellusonii or of mixed colours, all of which come freely from seed. They like a dry position and much sun. We congratulate you upon the elegant outline of your beds. Such gracefully flowing curves are infinitely preferable to a formal geometrical pattern.

ROSE BOXES (*Ploughboy*).—Your letter shall have our attention.

APPLICATION OF SEWAGE TO GROWING CROPS (*De Bosco*).—You are decidedly in error in thinking the application of diluted sewage once a month last summer to your Roses caused the leaves to turn yellow and drop off, for, on the contrary, this premature decay of the foliage is a sure indication of exhaustion from drought. See that your Rose beds are well drained, loosen the surface soil occasionally, and pour on your sewage as soon as the spring growth is pushing freely; pour it on undiluted just as it comes from the pump once a week in spring and twice a week in summer, and do not indulge in mere dribbles, but give it with a lavish hand. We have just such a cesspool and pump as you describe, and in summer it is almost in daily use. Roses, fruit trees, Grape Vines, Strawberries, Raspberries, flowers, vegetables—all have as much of it as we can find time and labour for the work; we have an ample supply, and pay very little attention to given quantities, but may state that we have given six gallons daily to a single Cucumber plant in very hot weather, and the growth, foliage, and fruit was extraordinary. A lesser quantity, however, will suffice to promote healthy growth and the production of a crop of fruit of average excellence.

ARTIFICIAL MANURE FOR MANGOLDS (*S. S.*).—We have obtained excellent results by using Lawes' grass manure at the rate of 6 cwt. per acre, sown with the seed. We are told that Amies' chemical manure applied in the same manner and at about the same rate is equally good. Notes on the cultivation of Mangolds will in due time appear in the "Home Farm" department of the Journal.

FERMENTING MATERIAL ON VINE BORDERS (*Idem*).—We are not in favour of using fermenting material to generate heat on Vine borders, and when intending forcing early Vines rooted into borders outside the vinery, we prefer covering the border with a couple of feet of dry litter by the end of September, placing shutters or other covering upon the litter to throw off rain, thus keeping the roots tolerably warm by shutting in some portion of summer heat and excluding cold rains and frost, and so we are able to venture to animate the growth by artificial heat sufficiently early to obtain ripe Grapes in May.

ARTIFICIAL MANURES (*A Lover of Rose Shows*).—The London Manure Company, 66, Cannon Street, London, E.C., supply them.

WORMS IN LAWN (*S. Garner*).—Put quicklime fresh from the kiln into water—a gallon of lime to twenty gallons of water—and when the water is clear pour it over the turf and the worms will come to the surface. We know of no work on lawns.

ANTS (*A Subscriber*).—Sprinkle Scotch snuff over their runs until they abandon them. The Fern may be syringed.

INSECTS IN VINERY (*A. A. M.*).—Sulphur applications will not do harm if the paint is not placed in contact with the buds of the Vines; neither will fumigating injure the Vines when they are swelling their buds. It is, however, always preferable to fumigate moderately for two or three consecutive nights rather than to give one very strong smoking. You do not say what insects you are troubled with, so that we are unable to give you more explicit advice.

NAMES OF FRUITS (*S.*)—Pine Golden Pippin.

NAMES OF PLANTS (*A. M.*).—1, Salvia Heerii; 2, Salvia splendens; 3, Eupatorium gracile. (*A. E. U.*).—The Ferns are all forms of Polystichum angulare; 5 is an Eriostemon. (*H. E.*).—1, Nephrودیум Filix-mas var.; 2, Polystichum angulare. (*J. L.*).—Your gardener is right. (*E. L.*).—1, Sedum sp.; 2, Pyrethrum frutescens. (*J. Everard*).—It may be the Acaia you name, but we cannot be sure from specimen sent. (*W. P. P.*).—Your Orchids had withered before they could be examined, and the other specimens were mere fragments of leaves. (*E. Thomas*).—1, Nephrودیум exaltatum; 2, Asplenium flaccidum; 3, Indeterminable. (*R. F. L.*).—1, 2, Nephrودیум Filix-mas; 3, N. spinulosum; 4, Nephrودیум cordifolia. (*E. L.*).—3, Codium variegatum; 4, Selaginella cuspidata; 5, Nephrودیум molle; 6, Pelica hastata. (*Mrs. L.*).—All four are forms of Asplenium Adiantum nigrum. (*A. B. C.*).—The larger flower is Narcissus Jonquilla, the smaller N. Pseudo-Narcissus var. minimus. (*A. T.*).—We cannot identify from leaves only. (*Constant Reader*).—The unnumbered Ferns are Nephrودیум molle corymbiferum; Polypodium vulgare var. caubricum; Gleichenia, species indeterminable. The Orchid is Dendrobium nobile. (*A. H. S.*).—Odontoglossum Pescatorei.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

CULTURE OF CLOVERS AND GRASSES.

BROAD or red clover is the leading sort and most coveted by farmers generally. It is, however, the most difficult of all the varieties to cultivate, and is so uncertain that it is often stated no man can say when he sows it whether he will secure a regular plant or not, and particularly where the land varies much. There are several varieties met with in the market, the old-fashioned English sort being the best of all. Much seed is offered derived from abroad, particularly from Normandy, and some from North Germany. The latter is more like the old English in sample, being a large flat-shaped seed. The sort from the south of France has smaller seeds and rounder, besides which the habit of growth of this French variety differs, and does not produce such heavy crops; nor is the second crop so certain as our old English sort, and it is somewhat difficult for a novice to discover the difference between our home-grown seed and that of foreign growth. It has been the practice now for some years to sow the French seed and save from it. Much of the bulk offered as English growth is still the foreign variety, and has not really the value of our old English variety, which is of a deeper purple colour than foreign seed. It is therefore best, when it can be seen growing, to obtain seed from a crop which has the characteristic of old red clover—namely, a large leaf and gross habit of growth.

It is usual to sow broad clover with the Lent corn, and as both barley and oats are sown on recently-tilled land it is often more or less hollow and wanting in firmness, and particularly where roots have been fed off by sheep the land is often cloddy, and very much against the taking of the clover plant. We often see that the headlands show a good plant of seeds and the remainder of the field very irregular, and it is fair to infer that the firmness and fineness of the land produced by the extra treading of the horses and turning of the harrows, roller, &c., is favourable for the young clover plant. Another illustration of the requirements of this plant is the almost surety of obtaining a regular plant when sown in the spring in an autumn-sown wheat crop. The land is then firm, and we have always secured a regular plant except on some occasions when partially eaten by the small white slugs, which are its greatest enemy. We recollect having obtained a fine plant seeded with wheat, after potatoes and turnips, five years in succession, and on each occasion the clover was cut up for horses and cattle during the months of September and October. Nor did this autumn cutting at all injure the produce in the following year, but, on the contrary, it was better after mowing than when fed by sheep or cattle in the usual way in the autumn. In sowing the seed, however, with the wheat, the land being hard on the surface, it should be harrowed with the iron harrows before sowing the seed, then roll with the ring roller, sow the clover seed, harrow with the chain harrow twice over, then leave it rolled. In this way the hard shell of the land is broken very fine, and the seed being sown after the ring roller cannot be buried too deep, nor can any seed be left uncovered, the land being entirely stirred by the chain harrow. When the clover seed is sown with Lent corn we recommend that it should be simultaneously with the barley or oats, and be rolled immediately afterwards with the ring roller.

There is a very general opinion existing that the surest way to obtain a good plant of clover is to vary the sort, and instead of sowing red clover once in every four years to sow it at the end of eight years, taking a crop of another sort of clover or grass in the intermediate course. The advocates of this plan say the land becomes clover sick; but we hold to the opinion that it is the proper tillage and firmness of the land, and its being in good heart and condition which secures the plant, for we know

certain light and gravelly soils where red clover has been sown mixed with the other grasses on the four-course rotation for a period of forty years and has never failed, but the land was well tilled and worked extremely fine before sowing the seeds. Red clover always flourishes most on loamy soils of any kind, still one of the great essentials is that the land should be fresh in chalk or lime; and if it is true that land can be clover sick it may best be cured by the application of gypsum and bone superphosphate. One of the greatest advantages of red clover is that when a good crop is obtained there is always a large quantity of strong roots, which ploughed in and pressed constitute one of the best preparations for the wheat crop on loamy and dry soils. The weight of roots per cent. is great, and in course of decay supplies the wheat plant with a large amount of the most valuable manure.

Alsike Clover.—This variety came originally from Sweden, and is no doubt a hybrid between the white Dutch and broad clover. It is perennial in its nature, and is productive. When it first came out as a new sort it was thought valuable as a change when broad clover failed, and has often been sown either with it or as a substitute for it. It is found, however, that the second growth after being mown for hay is very deficient, and consequently the Alsike clover has not extended in cultivation for some years. There is only one other point to be named, and that is in its favour, for we find when sown with broad clover, and that a part of the crop is required to stand until late with the view of cutting up for cattle or horses before the second crop is ready, that the Alsike continues to grow and bloom somewhat like the late varieties of peas, and continues of good feeding value for a lengthened period. The seed of Alsike is of a very dark green colour, and is more adapted for mixture with permanent grasses for pasture than for alternate husbandry under the four-course rotation of cropping.

White or Dutch Clover.—There are two sorts. The permanent and creeping variety is adapted principally for pastures. The other is called the long-haulmed, and certainly on favourable soils and situations yields a heavy crop. We recollect on certain occasions of cutting before it came into bloom for the especial purpose of making into hay for our early lambs, and we cannot grow any sort of hay so valuable for that purpose. The herbage is so fine and soft that when the Dutch clover is sown alone without admixture with rye grass the lambs eat it at an earlier age than any other sort of hay, and when the weather has been favourable and the grass cut early we have had the sample almost resemble a sample of hops both in colour and fineness of leaf, and on those occasions we have had quite 1½ ton per acre; and our lambs fed upon it with roots without cake or corn have been of the best quality, not only as regards fatness but most esteemed by the consumers.

(To be continued.) ~

WORK ON THE HOME FARM.

As vegetation is beginning to be somewhat active it will be necessary for husbandmen to be active likewise. The various operations of the farm in which the horses will now take part are of the most important nature. Where the land has been previously ploughed and intended for barley it must now be cross-ploughed if a fine tilth is not to be obtained without it by scarifying, and this will engage the horses for a short time. The horses, however, should be engaged in drilling beans and peas if not already done, as this is the latest time they can be sown with the best prospect of a crop, for when sown later than the middle of March they are more apt to suffer from blight. The best bean for sowing at the late period is the early *Mazagan*. It is the largest bean in sample of any sort used in field culture, and is also the best variety to grow for a double crop—that is, in admixture with vetches or small maple peas, as the corn is more easily separated if required. The advantage of this double crop is great, for we seldom or never find both crops suffer from the aphid which so often ruins the crop. The black aphid which injures the beans is brought by the east wind, the green aphid which attacks the peas is found when the west wind prevails, and it is seldom that these two kinds of insects prevail in the same season. In this double culture we drill two bushels of beans and half a bushel of peas or vetches per acres. As soon as the land is horse-hoed and hand-hoed the peas or vetches fill up the space between the rows of beans and effectually keep the weeds down. The meadow land and clover seeds must also be rolled if not already

done, because after the drying winds peculiar to the month of March the land becomes hard and will not yield to the pressure of the roller except in some moist meadow land. In drilling all the Lent corn, both barley and oats, let the rows be 12 inches apart; the plants will then have a free circulation of air between the rows, and in consequence a more healthy and vigorous growth, with stouter and stronger straw, and less likely to fall down with wet and wind on the eve of harvest.

The shepherds will now have nearly obtained all the lambs they expect from the down ewes, but they will still require constant care and attention; and if the farmer or bailiff finds it difficult to obtain a good shepherd, as we have done, it is better to always have an under shepherd, who will the more readily learn the work required of him as compared with some old hands, who have ways of their own and will not be taught or obey.

The feeding of farm horses is of great consequence, as they have now much heavy work to do. When they are fed ever so liberally with all dry food they cannot sustain the work so well as when they get a fair allowance of root food, such as swedes, mangel, or carrots, the latter being the best, and it is the old-fashioned food used in the eastern counties, as described in a report to the Board of Trade in the year 1776, wherein it is stated that carrots were so largely used as to form half the allowance to farm horses—that is to say, one bushel of oats per week were displaced by five bushels of carrots; and in this way, if we take the produce of the land by comparison, one acre of carrots will go as far in horse-feeding as four acres of oats, not including straw. The horses will also be much forwarder in their coats, more healthy, less liable to broken wind, and certainly longer-lived when fed on roots, say about 20 or 22 lbs. daily, than when fed on oats and hay only during the winter months and until the early fodder crops are ready, such as green rye, Italian rye grass, and trifolium.

The feeding of pigs also with root food is a matter of economy in farm management. The breeding sows will eat almost anything; but young and growing pigs, as stores, will not do well upon the mangel. We have known pigs die off when so fed, and on *post mortem* examination the lungs have been found black like the appearance of pleura; but this is only found in young animals under six months old and when they have but little else besides mangel. If, however, a liberal quantity of meal is used, either of barley or bean meal, and mixed in a pulp with mangel it feeds them profitably, and is one of the best mixtures we have ever used. The quality of the meat also as pork or bacon has always been satisfactory.

The days are now long enough to commence any repairs that may be required to the farm buildings, gates, pales, &c., and such work may now be done with advantage. We often delay some repairs until the spring, because in the short days of winter the carpenters, bricklayers, and others cannot do a full day's work, which at the present high wages paid to such workmen and artisans is of great importance. The odd horse will now be useful in carting some of the materials required, such as tiles, slates, deals, and other timber, also drawing rough timber to the pit ready for the sawyers; it is, however, a common practice to employ steam power for sawing where any considerable extent of work is to be done.

ARTIFICIAL INCUBATION.

FROM time to time an ephemeral rage for artificial incubation sets in among us. We remember this being the case about thirteen years ago, our advertising columns contained many tempting descriptions of incubators. We tried two ourselves, but were too busy to make anything like scientific experiments of them. Many of our friends tried others, and almost all with the same unsatisfactory result. It was a subject for regret that these trials were made in a somewhat purposeless way and without sufficient perseverance. However, the poultry-fancying public soon got tired of the pastime, and we heard many an exclamation, "Well, there is nothing like old hens after all." Second-hand incubators were everywhere offered for sale, and artificial hatching died a natural death. We have taken much pains to discover whether in any considerable English establishment it has been successfully and continuously carried on for any time, but we have not as yet heard of any instance of it. Meanwhile ingenious people have not been idle, and several fresh incubators of very clever and some of very elaborate construction have been brought out. A prize offered for them last autumn at the Agricultural Hall gave a fresh stimulus to the interest in artificial hatching, and we hear from many quarters that it is being seriously tried this season, and with, we hope, prospect of much greater success than has been usual, at least in this country. That it has been practised in other ages and in other lands is a matter of historical fact. That which has been done may, unless some important conditions have been changed, be done again, and therefore it is of practical use to glance at its past history in hopes of discovering the reason of our present want of success. In an age, too, which boasts to have reached an unparalleled pitch of scientific knowledge, it is instructive and interesting to look back to times in which those

whom we are used to regard as barbarians, and who certainly lacked many scientific aids and instruments which we now possess, by dint of quiet perseverance through inductions made from many experiences fathomed certain natural laws of which we are ignorant. We shall, therefore, attempt to give a short history of the art of artificial incubation, derived, as far as it has been in our power to reach them, directly from original resources both ancient and modern.

Like much other wisdom the knowledge of this art seems to have travelled from the remote East. In those ages of a, to us, prehistoric civilisation, the Chinese and Indians hatched eggs by heat generated from decomposing organic matter. To this day the unchanging Chinese hatch Ducks' eggs in the same way. From India this method doubtless passed into Egypt, where the priests of Isis kept the secret to themselves. The Egyptians hatched countless chickens by placing the eggs in vessels which they plunged into hotbeds of dung. Subsequently this primitive method gave way to the celebrated ovens. Our authorities for this ancient artificial incubation in Egypt are Aristotle, Pliny, and Diodorus Siculus, but their accounts of the Egyptian system are not very definite. The famous French missionary traveller, the Père Sicard, is much more explicit, though himself quite conscious of the deficiency of his own knowledge, for he did not find artificial incubation commonly known among the Egyptians, but the secret and monopoly of one village, Berme in the Delta, handed down from father to son. (*Il s'apprenait à leurs enfans et le cachait aux étrangers.*) Towards the hatching season—i.e., early in autumn, these Bermeans dispersed over the country, and each one took a situation as manager of an oven, and they and they only were employed in its regulation. About the construction of the ovens there was no mystery; they were when not in use open to the public, and are to be seen to this day: the treatment of the eggs while in them was the only secret. Monconys, Thouvenot, and other travellers have also described the ovens. We will translate a summary of their descriptions from a work by M. Malézieu:—

"The incubator (in Arabic 'chicken machine') is a rectangular building divided in its entire length into two parts by a corridor, on either side of which are the hatching ovens. They are in two tiers, the lower ones 1 metre in height, 2 broad, and 3 long. Each is provided with a door opening into the corridor, and with a good-sized round hole communicating with the upper tier. The dimensions of the upper ones are the same, save that they are two-fifths higher. Each has five apertures—one on each side communicating with the next oven, one above in the middle of the arched roof opening to the external air, one door opening into the corridor, and lastly the round hole at the bottom communicating with the oven below. Near the oven house is the place where the hot fuel is prepared, consisting of a substance made of rough straw and the dung of camels, horses, and cows. Close to this again is a chamber destined for the reception of the newly-hatched chickens. An egg room and an apartment for the manager complete the apparatus of an Egyptian incubator. Let us go on to the details of the operation, and for clearness' sake we will designate the ovens on each side of the corridor respectively by the numbers 2, 4, 6, 8, 10, 12 and 1, 3, 5, 7, 9, 11. They begin by working Nos. 2, 4, 6, 8, 10 on one side and 1, 3, 5, 7, 9, 11 on the other, thus:—In the lower chambers of the said ovens they place the eggs on a bed of cut straw and earth, then into the upper chambers they carry red-hot fuel, which they place in a trench running entirely round the hole communicating with the chamber below. The fire is kept up to a proper heat for ten days, which is the first period of the operation. At the expiration of this time they let the fire out and carry the eggs from the lower to the upper stage. At the same time they set to work the alternate ovens, 4, 8, 12 and 3, 7, 11, which have hitherto been unused; in these, as in the others, they place the eggs below and the fire above. This is the second period of incubation; it also lasts ten days, at the expiration of which the chickens hatch from the first eggs, which have meanwhile been warmed by hot air from the lateral apertures communicating with the alternate heated ovens." [This, we may remark, explains to us the origin of the ludicrous mistake which Rollin makes in his "Ancient History," vol. i., page 52—viz., that the Egyptian ovens took ten days to heat, but that the eggs placed in them when duly heated hatched in ten days!]

"The newly-hatched chickens are taken from the oven, and after a while consigned to the people who rear them in a room of suitable temperature. The first lot of ovens being now free they begin with a fresh batch of eggs, treating them as the others; thus the whole operation lasts from twenty to twenty-two days, divided into two periods, and the incubator hatches a certain number of chickens every ten days. We may remark that this process of artificial incubation has the merit of being a careful copy of Nature. The reader will have already perceived that in it the eggs are never heated from below. During the first ten days they receive heat from the upper furnace—i.e., from above, as when under the hens and during the second half of the operation they are kept at a proper temperature by means of the hot air, which comes in at the sides from the neighbouring ovens where the fire is.

"We may call attention to the fact that the success of the

process depends upon the talent of those who regulate the heat, still these poor Egyptian peasants are ignorant of the fact that the necessary temperature for incubation is about 40° centigrade (104° Fah.). Even the thermometer is unknown to them; still so practised are they in their work that they keep up a temperature of from 35° to 40° in their ovens. That is somewhat below the temperature kept up in modern incubators; for instance, Cantelo's machine maintains from 40° to 42° (104° to over 107° Fah.). The chickens, too, in the Egyptian ovens hatch at the expiration of twenty to twenty-two days, but in Cantelo's incubator they often come into the world on the eighteenth or nineteenth day. On the other hand, the chickens hatched in the modern apparatus, like greenhouse plants, are of so delicate a constitution that they can hardly bear the external atmosphere.

"The Egyptian incubator, apparently so rude in make, is still well suited to its purpose. Almost buried in the earth it suffers little from variations of the external temperature. The poor fuel used in it is probably more suited to the maintenance of an uniform and moist temperature than a more costly one. The numerous apertures, too, of the fire chambers are of great use in the regulation of the heat, for when the manager finds it too great he can open the doors; on the other hand, when it is too low he can close all communication with the external air."—C.

(To be continued).

IMPROVEMENTS IN THE SMALLER VARIETIES OF RABBITS.

ADHERING to our previous division the following breeds will come under this head—the Silver-Cream, Dutch, Himalayan, Polish, and Siberian. Such a division is rendered necessary by the strange arrangements of the fancy. Thus if all were classed together, and the same general directions and suggestions given for the improvement of the breeds, we should get into some little difficulty. The same directions, which if carefully followed would make the Patagonian or Belgian Hare large and valuable, would completely spoil the Dutch; and the same suggestions that would tend to keep the little Dutch small and proper would make the Patagonian puny, weak, and valueless. With the varieties under notice improvements are easy, and these have been carefully seen to for several years: hence they are now in a much better condition than some of the larger varieties. More prizes, and often prizes of greater value, are offered for them, and they seem generally more cultivated, an exception being made perhaps in favour of the Silver-Grey. The rules as suggested for the larger varieties must be modified very much. It is quite impossible to dispense entirely with what is termed in-breeding when the size has to be kept down to a certain pitch or standard; but care should be taken to avoid the practice as much as possible, because the constitution and colour alike suffer. The breeds in which size is required to be kept down should not be overfed when in kindle, and larger litters may be allowed. The sires of every breed should be strong and free from any constitutional debility. In marking and form they should be as near perfection as can be obtained.

In the *Silver-Cream* Rabbit we may see the most perfect development of improvement. This breed has in two or three years grown into one of the most admired and sought after of all foreign varieties. The reason is that the general features are so very pretty and admired, and the value will increase with the popularity. Size in *Silver-Creams* is not as yet very definitely determined, but we do not like to see them very large. The best winners are between 6 and 8 lbs. in weight and rather long in the body. The parents should be selected about this weight, and both should be strong and healthy. Both should have the creamy shade, like a very delicate *Silver-Grey*. Several good *Silver-Creams* have been obtained by crossing *Silver-Greys* with yellow Dutch or hutch Rabbits, but the records of how the best strains were secured seem enveloped in mystery, and the owners refuse to disclose the secret. For actual improvement we suggest breeding in the variety itself as likely to improve the shade; but it is essential that the parents should not be related, as a departure from this rule will be found to cause a deterioration in the shade and will encourage blotches of white. With these precautions, and if pale does are paired with darker bucks or the reverse, it may be expected that the breed will continue to improve gradually.

The *Polish* variety is very weakly and delicate. The points to be preserved are a delicate white skin and fur and a good constitution. A good many are very weak and die young. It is difficult to secure perfect breeders; the parents should be large comparatively and strong. This Rabbit should not be confounded with the ordinary hutch Rabbit, with which it should not be crossed. The main difference will be found in the circumstance that the pure-bred Rabbit is long and thin, whereas the less valuable one is thick and heavily made. There is also a difference in the eye. The *Polish* eye is very light.

The *Dutch* is also susceptible of improvement. As far as colour goes the remarks on the Lops will apply equally. It is supposed to be right to keep Dutch Rabbits small. It is consequently the practice to cross very near relations to keep down the size. It is

a pity that the fancy has decided in favour of this pretty variety being kept small, because the efforts made to keep down the size also weaken the Rabbit in many ways. As size depends a good deal upon the amount of nourishment received when very young very large litters of this variety are raised.

Improvements are needed very much in the *Himalayan* Rabbits. They are easy to be effected, but the results are not always quite the same, and patience is sometimes rather sorely tried. Size should be uniform and moderate, so in-breeding must not be encouraged. The points to be looked to most are the darkness of the points and the quality of the fur. Now it often so happens that a Rabbit has black eyes and grey feet, while another is good in feet and poor in the ears. Such a pair crossed would probably produce a highly improved litter. If the nose is bad and the feet moderate a dark-nosed mate should be selected for it. The bucks should be as perfect as possible, and they should be healthy and strong. The fur of both parents should be clear white and very short. If there is any foul upon a Rabbit of this breed—or indeed of any other—such as a bad mark on the dark portion of the fur, or a dark mark on the white, discard it at once for breeding.

The *Siberian* is an improvement. If the selected doe is good in wool, long and shaggy, and at the same time soft and flexy, but her dark points are light or grey, the buck should be very dark in his ears, nose, and feet, and if a little deficient in wool it will not much matter. In fact it is perhaps as well to select breeders that are extra good in one respect and a little weak in others rather than those that are about average in every respect. By that means any faults are the more easily eradicated. Carefully pair them so that no similar faults appear in both, or they will be greatly aggravated in the offspring.—GRTA.

THE LATE MR. C. W. JOHNSON, F.R.S.

IN addition to our remarks on the death of Mr. C. W. Johnson in last week's number (page 215) we extract the following from *The Croydon Guardian*—"The circumstance that first brought him into notice and into usefulness in Croydon was his taking the lead with a few other gentlemen in advocating the passing of the Public Health Act, and, as soon as it had passed, establishing a Local Board of Health in Croydon—one of the first local boards after the passing of the Act.

"He had, for some time before this, experimented and written on the great and difficult subject of the disposal of the sewage of towns. He was one of the first that pointed to irrigation as the best mode of thus turning evil into good, and his views gradually gained ground until they were sanctioned as scientifically correct by the report of a Government Commission.

"Twenty-nine years ago the Croydon Local Board was appointed with Mr. Johnson as the Chairman, and with only a small interval he has laboured at that post till his retirement in 1877. He published an edition of the Public Health Act with notes, which was widely used by the Government offices and by local boards and the public; and he therein pointed out by his notes that local boards had duties to perform for which sufficient legal powers were wanting. He struggled on, however, and aided the Board in the many difficulties which, in the then state of the law, they had to encounter and surmount, never sparing time or attention, and giving the ever-ready, valuable, and gratuitous assistance of a barrister to the difficult duties of the Board. In particular, he spared no time, attention, or exertion in aiding the Board of Health to fight the great water case against the Wandle mill-owners. When £30,000 of ratepayers' money had been spent on the Croydon waterworks and mains, a decision in the Exchequer made them suddenly useless. They could not be worked without diminishing the water in the river Wandle, and this was decided to be unlawful. The Board, however, traversed this decision, and although the mill-owners appealed to the Lords Justices, and being beaten there appealed to the House of Lords, yet the Board continued the struggle before that tribunal, and gained there a complete victory, establishing for ever their present right to pump any quantity of water that their wells can yield, whatever effect this may have on the water in the mill stream.

"The funeral of the deceased gentleman took place on Wednesday afternoon in the burial ground of St. Peter's Church. The deceased was followed to the grave by a number of friends and relatives, the chief mourners being Mr. G. W. Johnson, co-editor of the *Journal of Horticulture*, Mr. C. N. H. Johnson, nephew, and Miss Gower, niece of the deceased. Dr. Hogg, co-editor of the above Journal, and some private friends of the deceased were also present, including W. Drummond, Esq. (the present Chairman of the Croydon Local Board of Health), and Mr. R. J. Cheeswright, Clerk to the Board. The funeral service was impressively performed by the Rev. Canon Hodgson, Vicar, assisted by the Rev. J. White, incumbent of St. Peter's, and the remains of the deceased gentleman were consigned to the tomb in which his wife was buried several years ago."

Croydon Advertiser, March 16th, 1878.

"WHEN next the Board of Health assembles it will have to pay a

tribute of respect to an honoured memory, for Mr. Cuthbert William Johnson has passed away. The event was not altogether unexpected, but none the less will it inspire regret. Mr. Johnson was a type of the fine old English gentleman who is now becoming rare. During the many years that he officiated as Chairman of the Board of Health, although his temper was often sorely tried, he exhibited a happy mixture of tact, firmness, and courtesy, which was never departed from under any circumstances. Combining the *suaviter in modo* with the *fortiter in re*, he managed to control the most unruly spirits, and if the Board of Health could ever fairly lay claim to be a dignified assembly, it was certainly while he held the reins of office. A lawyer of no mean ability, his sound legal knowledge was often of great service to the Board when difficult or delicate matters had to be adjusted. Of genial disposition, he occasionally enhanced the dull routine of business with some little joke that met with general appreciation; but with his witticisms there never mingled any of the bitterness of satire, nor were they calculated to wound in the slightest degree the personal susceptibilities of any individual. In brief his chief characteristics were

High nature, amorous of the good,
But tinged with no ascetic gloom.

The domains of Science, Art, and Nature had each and all for him special attractions. He was the pioneer who led Croydon along the path of sanitary progress—the champion of that system of irrigation by which the dead refuse of the animal creation is made to minister to the wants of vegetable life. His ideas on this head were at first received with some degree of scepticism, but now there are many converts to the system he advocated, and the practical outcome of which is to be seen in the Board of Health's farm at Beddington. In the pursuit of his tastes he divided his affections pretty equally between the useful and the beautiful. If he was an authority on irrigation, he was no less a lover of arboriculture. It was under his direction that the Croydon cemetery was planted with shrubs, so admirably selected and arranged that bloom or foliage is always to be seen in that place of solemn memories. He it was, too, who dissipated the erroneous idea formerly entertained that trees in proximity to dwellings were unwholesome, and therefore undesirable. It was chiefly at his suggestion that in the Brighton Road, at Duppas Hill, and various other parts of Croydon, avenues were planted, which it may be hoped will attain stately growth and cast a grateful shade over spots which were before singularly arid and shelterless. These tangible evidences of taste and judgment will continue to exist as so many monuments of the good man who has passed away, and some of them, it is to be hoped, will preserve his name as one worthy of the reverence of posterity. Certain it is that by the death of Mr. Cuthbert William Johnson Croydon has sustained a loss which will be felt by many as a personal one. A man whose life has been consecrated to the true and noble, and whose deeds speak more eloquently for him than the most glowing panegyric that could be penned in words, will always have mourners in the wide circle that he adorned, and there are many who are connected by no ties of relationship with the deceased gentleman who will nevertheless claim the privilege of placing a chaplet on his tomb."

VARIETIES.

A CORRESPONDENT suggests that all growers of Prickly Comfrey should have a liquid manure tank on their premises, and as soon as the plants start to water round them plentifully with diluted liquid manure, taking care not to wet the leaves. This should be continually done.

THE quantity of food brought to Liverpool last week from America was quite up to the average of recent periods. Five steamers reached the Mersey, bringing collectively 5712 quarters of beef, 1628 carcasses of mutton, and 283 carcasses of pigs, whilst another steamer from Canada landed 150 head of cattle and 423 live sheep. No consignments of fresh butter came to hand.

THE imports of potatoes into London last week comprised 106,704 bags from Hamburg, 11,497 Antwerp, 13,522 Stettin, 8202 Bremen, 2674 Ghent, 746 sacks 61 tons Dunkirk, 771 sacks Rouen, 892 Harlingen, 200 sacks 150 bags Boulogne, and 241 packages Malta. The prices in the Borough and Spitalfields markets on March 18th were for Kent Regents, 190s. to 200s.; Victorias, 180s. to 210s.; Champions, 120s. to 150s.; Essex Regents, 170s. to 490s.; Rocks, 100s. to 130s.; Flukes, 190s. to 220s. per ton.

IN an admirable paper on the milk supply lately read at the Botley Farmers' Club, Mr. Joseph Blundell quoted the following old lines describing what a dairy cow ought to be, and he remarked that although they were written many years ago they apply equally well at the present time—

"She is light in her neck and small in her tail,
She's wide in her breast and good at the pail,
She's fine in her bone and silky of skin,
She's a grazer's without and a butcher's within."

THE *Rural New Yorker* publishes the following testimony of the value of Spangled Hamburg fowls:—Two years ago we purchased some eggs of the Spangled Hamburg variety, and we

are so well pleased with these fowls that we keep them only, having disposed of our old stock—Buff Cochins and Leghorns. The eggs of our favourites are small, as are also their bodies, yet they are the greatest layers we ever had and the easiest keepers. Our fowls eat but very little, and seem to lay summer and winter with little intermission, scarcely ever wishing to sit. Last summer we were obliged to obtain hens of another breed to sit. Their dark legs are a slight objection, yet their good qualities overbalance all their little defects.

THE Hull Cattle Plague Committee and Dock Company are preparing for the new conditions likely to be imposed on the landing and disposal of foreign cattle. The Dock Company have declared their readiness to provide for the slaughter of cattle in sheds on the south side of the Albert Dock, provided that the Privy Council will sanction the plan.

A VALUABLE herd of Highland cattle belonging to the Earl of Lovelace were entirely destroyed last week in his park at East Horsley in consequence of their having eaten the cuttings of a large number of yew trees.

IN 1867, 2152 horses, asses, and mules were consumed in Paris. In 1877, 10,008 horses, 558 asses, and 53 mules, furnishing 1,932,490 kilogrammes of meat, exclusive of the heart, liver, tongue, &c., which are also eaten; and there are now sixty-one horse butcheries. One will shortly be opened in London. Even if Englishmen are too fastidious, it is thought there are plenty of foreigners in London to serve as customers for the horse flesh.

AT a recent meeting of the Entomological Society Sir John Lubbock read a paper on the colouring of British caterpillars. Accepting the principle laid down by Mr. Darwin and others that dull-coloured, green, and smooth-skinned caterpillars are eaten by birds, &c., whilst spiny, hairy, and brightly-coloured species are rejected, the author stated that by the statistical method it was shown that no hairy caterpillars are green, whilst, on the other hand, a large majority of black and brightly-coloured species are hairy or otherwise protected.

AN American writer on poultry, Mr. Henry Hales, observes that unless you want a large proportion of cockerels do not set all the largest eggs you can pick out. There are no means known by which the sex of eggs can with certainty be determined. Although many have thought some signs indicated the sex, yet after repeated fair trials all these indications have entirely failed with me, except the one which follows:—With regard to the eggs of most of the feathered kingdom, if you pick the biggest out of a nest they generally produce males, especially if they happen to be the first laid. Even in a canary's nest it is noticeable that the first egg laid is very often the largest; the young from it is the first hatched out, keeps ahead of its comrades, is the first to quit the nest, and the first to sing.

MR. HENRY M. E. CROFTON communicates the following note on experiments with potatoes to the *Irish Farmers' Gazette*:—Last spring he planted 1 stone of each of the following kinds, supplied by Messrs. Sutton & Sons of Reading, in drills on the same day, beside each other in the same field, and with the same treatment, with the following results:—Suttons' Magnum Bónum produced 21; Paterson's Victoria, 12½; Late Rose, 4; White Rock, 7; Snowflake, 13; Griffé Castle, 5; Fox's Seedling, 5; and Early Hammersmith, 4 stones.

OWING to the great increase of wood pigeons, and their destruction to the crops of the district, a circular letter has, it is stated, been addressed by the officials of an old Fifehire association to the landed proprietors of that county, requesting that instructions may be given to gamekeepers and others to seize as many wood pigeons' nests and destroy as many young pigeons as possible during the ensuing breeding season.

A USEFUL invention has recently been made by Herr Weber of Hummel-Radeck, near Lübben (Prussia). This gentleman has contrived to construct a very simple machine for levelling roads, which for working requires only two horses, a driver, and a labourer, and renders it possible to make such improvements in a road in a short time as could otherwise be accomplished only by fifty or sixty workmen. The machine works equally well upon gravel or clay soil, and its cost is only forty-five marks (shillings). The whole machine works much in the same way as an ordinary carpenter's plane does upon wood.—(*Nature*).

ITALIAN VERSUS BRITISH BEES.

A STATEMENT published in the *Banffshire Journal* shows that the question has been taken up heartily by our friends in the north, and I hope they will make arrangements for a fair trial of strength this next summer. Mr. Campbell's challenge if accepted would not settle the question at all, for one swarm might be earlier, larger, or on better pasture than the other. In competitions of this kind the swarms should be of equal size or weight, stand together and commence work at the same time. These Aberdeen gentlemen are thoroughly honest and well-meaning, and besides are clever bee-keepers. We therefore expect that the conditions of trial will be well arranged and satisfactory to all

parties. Whatever be the result no one will lose anything, and therefore has nothing to fear.—A. PETTIGREW.

A SPRING OVERHAUL.

HAVING already endeavoured to show that bees are endowed with powers sufficient to withstand with impunity the most severe winters, always provided their domiciles be kept externally as well as internally dry, the openness and extreme humidity of the by-past winter, with its occasional sharp frost checks, caused the thoughtful apiarian much more anxiety for the well-being of his little favourites than one with long spells of clear dry cold frosty weather and free flights during the thaws. In our district, having had many reports of the sadly decimated numbers of stocks in the cottagers' apiaries, it was not without some misgivings on the forenoon of Thursday, the 23rd of February, thermometer 53° in the shade, that I summoned my assistant to fetch the operating table and the tools so that we might know the worst.

I had better first explain that after autumnal unions my stock numbered ten colonies all told, amongst which I had divided 1 cwt. best Greenock crushed sugar boiled up into syrup, besides giving three weighty unsealed-out supers placed below to be carried up for winter store. As usual the lion's share fell to the weaklings—swarms and swarmed stocks; but so wretched was the honey season of 1877 that (rare occurrence) my strong non-swarmling colonies even deigned to partake.

After careful tests, extending over several seasons, of the comparative value of the Italian and its first crosses I was led many years ago to discard the black bee, consequently these ten stocks had at their head respectively the Italian element as follows:—Three imported queens of last season to propagate from, three first-cross daughters of 1876 from such imported mothers, and four of 1877, these last taking the place in the fall of old and deposed sovereigns. Disliking the appearance of the end combs, and a slight dampness in the corners of a couple of square frame hives employed over the season to carry a greater number of sectional supers, I transferred, as is my wont, the bees and central frames to octagon Stewarton dry boxes for their better wintering. Of these ten stocks nine were then in Stewarton, the remaining in a straw hive, eked to prevent swarming. On finding the last of the late brood hatched out I stripped off all carpets and remaining super coverings, and placed the stocks in winter quarters, seven being under protection of substantial moveable wooden covers, and the remaining three under fresh thick straw hackles. Side entrances had been run in at the close of the honey harvest, and finding no appearance of propolis barricades being built at the entrance I concluded an open winter was to follow, consequently I left the central slide fully drawn for the better circulation of pure air; thus my ten stocks were left to take care of themselves untouched for fully four months.

To return to the 23rd of February. I commenced work with No. 3, common straw skep, under protection of the best wooden cover; and on raising the hive I was much mortified to find it quite dead, not, however, from starvation, as it was still weighty with surplus store, nor yet from lack of population. In addition to its own bees it had those of a large swarm safely added, and so far as I could see up amongst the combs not the slightest trace of foul brood. The combs being white and mouldy, I have no doubt the bees fell victims to dampness imbibed before the stock came into my possession, straw as a material being too ready to absorb and retain moisture when neglected in such a wet season as the last; fortunately the old adage held good—"A bad beginning makes a good ending," for all my nine Stewarton colonies turned out thoroughly dry and in excellent condition, fully provisioned to stand over a couple of months. The *modus operandi* of examination was as follows:—A stock was raised from its stand as gently as possible and set upon the table, all comb fillings and debris were rapidly scraped off with knives; the board, formed of old dining-table tops was then polished with a coarse cloth, the stock was replaced, slides drawn, frame after frame and comb by comb lifted out and carefully scrutinised, an audience sought with the respective sovereigns, the extent of eggs and brood in each hive estimated, and the surplus store duly appraised. Although my liking is towards the more sombre and larger first-cross bee, yet truth causes me to confess that the imported queens at the head of the weakest stocks were much in advance of others for breadth of sealed brood, showing in every case the pure Italian to be the earlier breeder.

I would here pause to remark on the oft-repeated assertion by disparagers of the Italian—that their superiority can be accounted for by such imported queens being usually placed at the head of the very best stocks in the apiary, when in actual practice the very reverse holds good; for this reason—the bee-keeper is naturally averse to dethrone the proved best breeders of his most populous stocks, both for their own sakes as well as from the greater difficulty in securing them amongst their crowds of offspring, hence such queens are too often placed at the head of the very weakest, and their breeding qualities are displayed to the best advantage in making up the leeway.

Your correspondent Mr. Pettigrew recently administered sound

advice to his brother fixists as to the benefit derived from uniting their weakest hives in spring, while we movists would shudder at the bare thought of destroying our valuable queens at this season while just expanding into the most matronly proportions. How simple the transference to such weak hives of a frame of ripe brood from a strong stock as required! We thus retain the breeding power of all our queens and apiary at its full strength.—A RENFREWSHIRE BEE-KEEPER.

OUR LETTER BOX.

OXFORD SHOW (*J. Aldridge*).—You must state your case to an attorney, and he will advise you how to proceed.

COCK AND PULLET (*St. Honore*).—We cannot identify fowls from descriptions.

CROOKED COMBS OVERLOADED (*A. K.*).—Sometimes bees disregard guide combs and build their combs crooked and not in a line with the moveable bars. When the bees do this the bars are not moveable without loss. The combs in your sugar-made stock are also very thick and so overloaded with syrup that you fear that your take of honey in the autumn will be mixed with syrup. When the hive becomes fuller of bees the syrup will be eaten and the combs cut down to their usual thickness. If your bees have empty combs enough to breed in, you have nothing to fear. Do not give them much barley-sugar at present, rather cut the lids off some cells of sealed syrup near the bee nest, extending this work from week to week. Abbott's standard hives and all other hives require outward coverings of some kind to protect them from rain and the rays of the sun.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1878.	Barom- eter at 33° and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.				
March.		Dry.	Wet.			Max.	Min.	In sun.	On grass			
We. 13	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.			
Th. 14	30.350	40.4	35.4	N.	44.3	46.0	36.9	98.0	32.9			
Fri. 15	30.328	37.8	33.3	N.W.	42.5	48.4	27.0	95.2	31.4			
Sat. 16	30.415	40.2	37.8	N.W.	42.1	46.7	34.7	98.8	32.7			
Sun. 17	30.449	37.7	33.0	N.E.	41.4	45.9	32.7	96.1	32.3			
Mon. 18	30.567	36.5	34.2	W.	40.8	50.8	36.4	91.3	30.6			
Tu. 19	30.349	49.8	46.7	N.W.	41.9	55.3	35.4	75.7	34.3			
Tu. 19	30.378	48.4	46.2	N.W.	43.9	55.1	46.1	70.0	44.3			
Means	30.448	41.5	38.4		42.4	49.9	34.3	87.1	29.3			

REMARKS.

13th.—Very bright in early morning, afterwards cloudy, with intervals of bright sunshine; cold wind, fine starlight night. Lunar halo 11.15 P.M.

14th.—Rather foggy and slight white frost in early morning; fine sunny day. Very fine series of solar halos and mock suns about 4 P.M.; moonlight night.

15th.—Fine morning, slight snow shower at 0.30. A true March day; dull and cold with intervals of sunshine.

16th.—Fine, sunny, but cold day.

17th.—Very cold in morning, but fine and sunny; dull afternoon and evening; rather warmer and cloudy towards night.

18th.—Fair day, at times very cloudy and dull; slightly rainy at night.

19th.—Fair morning with little sunshine; very cloudy and dull in afternoon; fine evening.

Another dry week, with very high pressure, and two or three sharp frosts.

—G. J. SYMONS.

COVENT GARDEN MARKET.—MARCH 20.

We have very little now to offer in our market, old Grapes being nearly over. Strawberries, though a short supply, are more than equal to the demand. Trade very quiet.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½	sieve	2	6 to 6	Melons.....	each	0	10 to 0	0
Apricots.....	dozen	0	0	0	Nectarines.....	dozen	0	0	0
Chestnuts.....	bushel	10	0	20	Oranges.....	½	100	2	0
Currants.....	½	sieve	0	0	Peaches.....	dozen	0	0	0
Black.....	½	sieve	0	0	Pears, kitchen.....	dozen	1	0	0
Figs.....	dozen	0	0	0	dessert.....	dozen	3	0	12
Filberts.....	½	lb.	0	6	Pine Apples.....	½	lb.	1	6
Gooseberries.....	½	lb.	0	6	Plums.....	½	sieve	0	0
Grapes, hothouse.....	½	lb.	4	12	Raspberries.....	½	lb.	0	0
Lemons.....	½	100	6	0	Strawberries.....	½	lb.	12	0
					Walnuts.....	bushel	8	0	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	dozen	2	0	0	Mushrooms.....	pottle	1	6 to 2	0
Beans, Kidney forced.....	½	100	2	0	Mustard & Cress punnet	0	2	0	0
Beet, Red.....	dozen	1	6	3	Onions.....	bushel	2	6	2
Broccoli.....	bundle	0	9	1	pickling.....	quart	0	4	0
Brussels Sprouts.....	½	sieve	2	6	Parsley.....	doz. bunches	2	0	0
Cabbage.....	dozen	1	0	2	Parsnips.....	dozen	0	0	0
Carrots.....	bunch	0	4	0	Potatoes, frame.....	½	lb.	0	2
Capicium.....	½	100	1	6	Potatoes.....	bushel	3	6	7
Calliflowers.....	dozen	2	0	4	Kidney.....	bushel	1	0	0
Celery.....	bundle	1	6	2	Radishes.....	doz. bunches	1	0	1
Coleworts.....	doz. bunches	2	0	4	Rhubarb.....	bundle	0	6	1
Cucumbers.....	each	1	0	2	Salsify.....	bundle	0	9	1
Endive.....	dozen	1	0	2	Scorzoneria.....	bundle	1	0	0
Fennel.....	bunch	0	3	0	Seakale.....	basket	0	2	0
Garlic.....	½	lb.	0	6	Shallots.....	½	lb.	0	2
Herbs.....	bunch	0	2	0	Spinach.....	bushel	2	6	4
Lettuce.....	dozen	0	2	0	Turnips.....	bunch	0	2	0
Leeks.....	bunch	0	2	0	Veg. Marrows.....	each	0	0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	MARCH 28—APRIL 3, 1878.	Average Temperature near London.			Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h. m.	h. m.	h. m.	h. m.	Days.	m. s.	
28	TH	Royal Society at 2.30 P.M. [Rooms at 12.30.	53.3	34.3	43.8	5 46	6 24	4 5	0 43	24	5 9	87
29	F	Sale of Mr. Tugwell's Exhibition Plants at Stevens	53.9	33.9	43.9	5 44	6 26	4 21	1 34	25	5 41	88
30	S	Chemical Society (Anniversary) at 8 P.M.	53.8	34.9	45.4	5 42	6 27	4 33	3 5	26	4 32	89
31	SUN	4 SUNDAY IN LENT.	54.8	34.0	44.4	5 40	6 29	4 48	3 14	27	4 14	90
1	M	London Institution at 5 P.M.	54.9	34.6	44.8	5 37	6 30	4 56	5 23	28	3 56	91
2	TU	Royal Horticultural Society—Fruit and Floral Com-	55.5	35.6	44.5	5 35	6 32	5 7	6 32	29	3 38	92
3	W	Society of Arts at 8 P.M. [miteess at 11 A.M.	56.8	35.3	46.0	5 33	6 34	5 19	7 48	1	3 20	93

From observations taken near London during forty-three years, the average day temperature of the week is 54.7°; and its night temperature 34.3°.

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DAMPING-OFF.

WHAT causes damping-off, and under what conditions is it most likely to occur? Does it occur when there is a superabundance of moisture in the atmosphere or soil, and are plants most liable to be injured by it in dull weather? Anyone who has taken the trouble to closely examine the subject, regardless of preconceived notions, will probably have arrived at conclusions very different from those who are not in the habit of thinking for themselves.

The quantity of atmospheric moisture has very little to do with the subject; indeed damping-off very frequently takes place when both atmosphere and soil are much too dry for the good of the plants; and an atmosphere which is sufficiently moist for plants to exist in will always contain ample moisture to cause damping-off if the other conditions are favourable to it. On the other hand, the tiniest and tenderest plant or cutting may be grown in a saturated atmosphere without damping. Do not, then, keep your tender plants dry and parched with the idea of preventing damping-off, you only encourage red spider and other insects as well as maladies, but look in another direction for both cause and prevention.

The mischief will be found to be caused rather in bright than in dull weather, and excepting when damping-off occurs from contact with decaying matter it will invariably be found to be caused by condensation of moisture on the plant or the soil surrounding it. We admire the thousands of tiny dew-drops clustering round the edges of the vigorous leaves of our forced Strawberries and Roses before they come to the flowering stage, and we do not object to see a few silvery beads occasionally in the morning on our Cucumber and Melon foliage—we know that the plants like the water, and that insects do not; but the same moisture would be almost fatal to Cape Heaths, Neapolitan Violets, and double Primulas, as well as the most tender seedlings and cuttings, if it lasted for any length of time.

As the exceptions are so few I may say generally that damping-off is caused by condensation of moisture, or, in other words, formation of dew. Condensation takes place immediately, if the air is still, on all bodies which are a certain degree colder than the surrounding atmosphere, and the dew remains on them till either the bodies are heated, the atmosphere cooled, or there is a brisk movement of air about them. Let me add that gardeners are not the only persons who are behind with this subject. Housemaids, cooks, schoolmasters, clergymen, and indeed all who have to do with habitable buildings, the food we eat or the clothes we wear, ought to be thoroughly acquainted with the subject, but I am afraid it is a fact that very few understand it. I am quite aware that I do not understand it myself, but as learners are always easier taught by their brethren who are also feeling their way, and are not so far ahead as to be out of reach of sympathy and kindred feeling, rather than by professors whose teaching, if more precise and correct, is generally dry and complicated, and consequently little read, that is my excuse for sometimes going a little beyond my

practical knowledge to touch on the region of theory, where I feel that if not always quite scientifically correct I may yet sometimes be the humble means of inducing others to think and even to teach.

"That nasty damp weather," says Mary Jane, "has made my fire-irons so rusty, I am so glad to see the sun shine;" and up go the windows to let in the soft south-western breezes. But Mary Jane is making a mistake; the air she lets in is considerably warmer than the room will add materially to the poor girl's hard work, and if the mischief ended there it would not perhaps so much signify. But fenders and fire-irons are only the tell-tales; they unfortunately do not receive a monopoly of the dew that is deposited. Metal bedsteads, plastered or painted walls (perhaps with clothing hanging against them), receive their share, although they do not rust. Mrs. Magnus, the cook, says the frost is just going out of her meat, and she must either cook it afresh or place it on ice. She knows the practical remedies from seeing them applied before, but she is not quite correct in her theory; when she does become so she will to a great extent be able to prevent the necessity for remedies. After a church or schoolroom has been filled with people for some time the walls are seen to be almost streaming with water, and the buildings are pronounced damp. Even the Ivy-clad cottage with open windows on a bright spring day after a spell of cold weather gets the same bad character. The reason is the same in every case, and the injury can be avoided in the same way—viz., by not allowing the beef, the walls, or the fire-irons to become colder than, say, 50°, or a little above the average temperature of the district and season.

Many people seem to have an idea that if a building is heated to a certain degree it is in a fit state for habitation as far as the heating is concerned, although it may have been quite cold for days previously and up to within half an hour of its being required for use; but I must tell them that there are sensitive people whose bodies are the most perfect thermometers, barometers, and hygrometers combined, and who are often exposed to great inconvenience and even constitutional injury from this general want of knowledge on the part of responsible persons. It would be far better not to heat at all than merely to heat the air while the walls, floors, and fixtures are icy cold.

I knew an accomplished noble lady who was the subject of ridicule on the part of her servants because when visitors were coming she would superintend the airing of the rooms herself for their reception, and her mode was very different to that practised by Mary Jane when using what she called her own common sense. The lady would insist on having large fires from early morning with closed doors and windows, keeping the room for a considerable time almost unbearably hot; then previous to the visitors arriving the windows would be thrown wide open for a short time, and the fire allowed to get down to a comfortable size. This I maintain is a true scientific way of making a room fit for human habitation.

I have run away from my subject of the damping-off of plants without pointing out the remedy, but the cause itself will suggest the remedy. Anything which will tend

to prevent great fluctuations of temperature will lessen the danger of damping-off. Shading during sunshine, giving air at the highest point of the pit or house as soon as the sun touches it, keeping the soil warm by means of bottom heat, are the three plans to be recommended separately or collectively under different circumstances; and there are two other plans which I do not recommend—viz., a generally high fire-heat temperature, and placing tender plants on upper shelves near the ventilators.—WILLIAM TAYLOR.

VEGETABLE CULTURE.

CHAP. XII.—THE LEEK.

THE Leek is a native of Switzerland and one of the hardiest inmates of our vegetable gardens. Although it is not so valuable as many other vegetables it is cultivated more or less in nearly every garden, and many amateurs take as great a delight in growing Leeks as others do in cultivating the choicest fruits and vegetables.

The remarks in these chapters on vegetable culture are mostly applicable to general cultivation; and as a chapter on preparing vegetables for exhibition will follow, the cultivation of the Leek for that purpose need not be referred to here.

For early Leeks a small quantity of seed is usually sown in a pot, pan, or box early in February, and placed in a frame or some slightly heated place, and when the plants are 3 or 4 inches high they are pricked out either into a sheltered border or frame amongst some rich soil. Here they remain until they have formed good-sized plants, and are then transplanted into the main quarters. Leeks of the very finest quality, however, and good enough for ordinary use, may be had from seed sown in the open ground from the beginning to the end of March. The seed is sometimes sown in the rows where the plants have to grow, and when they are large enough they are thinned out to 8, 10, or 12 inches apart. We seldom adopt this plan, but are perfectly satisfied with the following simple system: The Leeks are raised in a seed bed the same as Onions. The seed is sown broadcast. When the seedlings appear the bed is kept perfectly free from weeds, and if the surface soil becomes caked it is loosened with the point of a dibber. The seed should never be sown so thick that the plants will come up in close tufts, and they do not then require transplanting until they are finally planted. This should be done when they are 6 or 8 inches high. Where to plant and what soil to plant in must now be considered.

The first question is not of much consequence, as Leeks will grow anywhere provided they have plenty of good material to grow in. We never give our Leeks the best position in the garden, but we always give them the richest soil. A partially shaded place need not be avoided in planting if no better can be had. The ground should be deeply dug or trenched to the depth of 2 feet or more. The manure should be put down plentifully at this depth, because it is not much use having it nearer the surface than 6 inches, as Leeks are more inclined to root downwards than many other crops. It is not of great importance to have the soil turned up to the weather for some months previous to planting Leeks, as they do equally as well in soil dug over shortly before planting.

Having dug the soil deeply and manured it extra well, the plants may be planted in two ways and secure the same results. One is to take a dibble about 5 or 6 inches thick at the point and make holes 6 inches deep. In planting the roots are merely covered with a little soil, the holes being left open to allow the stem to expand freely. The other way is to draw drills 6 inches deep and dibble-in the Leeks along the bottom of the drills. In either case the plants should not be planted closer than 1 foot or 15 inches between the rows and 6 inches between the plants if fine produce is required. The object in planting Leeks deep is chiefly to make blanching the stem an easy matter, as the more a Leek is blanched the more valuable it is. Those planted in drills should have the soil levelled around them when they are large enough, and as they grow above this the soil should be drawn up to them, pressing it firmly about the stems. Those in holes are treated in the same way, only the holes generally become filled up by the soil falling in as the hoe is run between the rows, as it is necessary to do this several times throughout the season. Good Leeks should have their stems blanched from 6 inches to a foot. They should be quite fit for use from September until May. They require no attention during winter. When the ground they are growing on is wanted for other crops before the Leeks are all used they may be lifted and laid in closely

by the heels in any odd corner. The two best Leeks for any purpose are Musselburgh and Henry's Prize.—A KITCHEN GARDENER.

JUDGING ROSES.

[THE following communication arrived too late to be read at the meeting of the National Rose Society on March 5th, but is too important to be withheld from the public.]

A CORRECT estimate of the comparative excellence of Roses lies at the root of all Rose-growing and showing, and when defined and made known it becomes a standard for rosarians to aim at, and a law by which awards are to be regulated. "Our Society," therefore, surely does well in ventilating this subject so as to substitute recognised principles for vague notions, which latter afford neither information to the cultivator nor satisfaction to the exhibitor.

I assume that the National Rose Society aims at the encouragement of the highest cultivation of the Rose, by which term I mean the giving the most appropriate soil, situation, pruning, and general management. Then I maintain that the ascertained results of such cultivation ought to decide "the rules or principles that should be laid down for judging Roses."

Each Rose-grower can but give his own experience in this matter, and my own is as follows:—

Cultivation improves the size, intensifies the colour, beautifies the texture and foliage and strengthens the growth, but does not alter the form or shape, so that an exhibitor must depend upon his own judgment in selecting the best-shaped Roses, amongst which those ought to be most highly esteemed which are the grandest in size, the most brilliant in colour, and the softest in texture.

Objection will be raised by some against the value attached to size. According to them such Roses are "coarse overgrown monsters," &c. My simple reply is, This is the mere depreciation of what they either cannot, or at least do not achieve, for I can hardly believe that such persons when cutting for a Rose show have ever deliberately selected blooms of medium size and left behind them larger blooms in the same stage of growth. Anybody can grow medium-sized Roses, but we want a high standard of excellence to which the striving few only will attain, and we ought not to be satisfied with mediocrity. No: I do not advocate the exhibition of expanded Roses, which are past that stage of perfection at which they should be shown. Staring eyes, dropping petals, and loss of colour will tend to check and correct overblown Roses being staged. But supposing two blooms to be at the same stage of growth, that one is the best which has attained the fullest and amplest development. Roses should be exhibited at the maximum of excellence—just before they begin to deteriorate, and at that stage they should be as large as the limits of Nature will sanction. Take a large and a medium-sized Rose, and judge them as you would a course between two greyhounds—that is, at every turn, from the start to the death, and you will find that the medium bloom is very soon out of the race altogether. Of course, in magnifying anything we magnify its defects as well as its excellencies; but who would prefer a sight of the planets through an average spyglass, wherein they appear "very pretty," to one through a telescope like that of Lord Rosse's, which exhibits them in all their wondrous grandeur and interesting detail, notwithstanding defects proportionately enlarged.

As to colour and texture, I take it we are all pretty much agreed. Brilliancy and softness, the concomitants of good culture, are the results desired.

As to form, I have said that the shape of Roses is unaltered by cultivation; the exhibitor, therefore, must choose those Roses which are naturally the best shaped. I picture to myself a fellow rosarian taking me to task with didactic and patronising condescension. "Form, sir, is everything." His own Roses are symmetrical buttons, which have had no opportunity of developing either their excellencies or defects, but he speaks as though he monopolised the secret of producing Roses in any shape he chose, and expected others to obtain blooms of square or triangular form in consequence of their comparative ignorance or inferiority of culture!

But there are other matters to be borne in mind in judging Roses. There is no uniform recognised system of adjudication, and very often one judge knows nothing of the way in which another goes to work. A gives a number to each bloom; B counts the good, and C the bad blooms. D takes a bird's-eye view of matters; E asks himself which would sell the best;

F is partial to Teas; G is less so; H has no definite opinion, except that they are all grand lots and he is very fond of Roses; J is only Lord Noodle's head gardener; K has a personal bias which he cannot conquer; L goes by his common sense; and M varies his estimate at every different stand.

Correct naming is a matter which must be insisted upon. We must put down all tricks and deceits, unless we mean to go into horseracing. Oh! the shifts and chemises to which I have known some exhibitors have recourse in order to insert duplicates under fictitious names. Yet the judges have not always the time to look out for and detect these instances of dishonest staging, and sometimes they lack the necessary firmness to disqualify such exhibitors. In my opinion, therefore, some such printed instructions as these should be furnished to the judges:—

You are to adopt the system of giving a numerical value to each Rose from one to five according to excellence, and a majority are to agree to each such value. To these totals may be added from one to five marks per dozen Roses for taste, neatness, good foliage, and variety of colour in arrangement. The awards, of course, go to the highest numbers in their order, such numbers to be written on the prize cards attached. But if such totals come within one mark per dozen blooms, then the stands which they represent shall be adjudged equal, in which case the prizes shall be added together and divided equally.

The judges are to have regard to the following properties of the Rose in the order named:—1, *Size*, up to but not beyond that stage of growth when blooms commence to deteriorate—i.e., not overblown or decayed in colour. (Some Roses, such as Annie Wood, show the eye at a very early and stageable age, which is quite admissible.) 2, *Brilliance and depth of colour together with smoothness of petal*, not that a small bright Rose is to be preferred to a larger one less bright, unless the latter be really faded, but brilliancy is to be regarded as second only to grandeur of size. 3, *Shape*. Each variety retains its own form, but those Roses which are circular, full, convex rather than concave, with petals nicely arranged, are better than such as are otherwise.

Competent persons are appointed who will inspect the stands with a view to detect duplicates and wrong names. In case of unintentional mistakes, such as the staging of two Roses with the same name given, the exhibitor shall be called in and allowed to correct the error by staging another variety; but in the case of undoubted or even very questionable deceit, there must be unhesitating disqualification, which shall be written on the exhibitor's card.

In case of complaints or protests against the awards of the judges, none such can be entertained which relate to private estimates of excellence, but those only which disclose deceit or infringement of conditions otherwise undetected.

With a view to the instruction of rosarians in the principles of making awards, each set of judges may be accompanied by one such novice, who is not an exhibitor, who may seek information but not attempt to influence the judges. Application to be made through the Committee or Secretary, who might appoint such persons as honorary clerks to the different sets of judges to record the awards.—THE REV. E. N. POCHIN, *Barkby Vicarage, Leicestershire*.

NOTES ON VARIOUS TOPICS.

LET me first begin a somewhat discursive letter by thanking Mr. William Taylor for his very valuable article in your number of March 7th on Propagation by Cuttings. I have no hesitation in saying, that though he calls it hints to learners, there are many professional gardeners who might take a lesson from it. I have often said, and say again, that half the outcry raised against bedding-out (summer bedding-out I may say *par excellence*) is, owing to its having been taken up or adopted as a fashion, without proper provision or accommodation, or, as in many cases, without proper knowledge on the part of gardeners of the means of wintering, and afterwards of propagating, softwooded perennials. Bedding plants are too often valued as so much the thousand, and the plants which have to produce the stock in spring are kept on the makeshift principle, either starved in cold pits, or dried on shelves, or crammed into boxes, or (as in some cases) hung up by the heels in a cellar, and then, when the warmer days of the beginning of April begin to remind gardeners that bedding-out time is drawing near, a sudden impulse is given to forcing on the old stock, making cuttings how and where they may be had, placing plants under early Vines to be drawn up under dense

foliage, or one makeshift or another is adopted; and then the whole system of summer bedding-out falls into disrepute, because the plants by the first week in June have no real stamina to withstand the open air and the drying sun which we so often have between the 8th and the 21st of that month.

No persons ought to attempt to bed-out largely without they have means and appliances to boot, and will keep their stock plants in a rational way during the winter. Of course Geraniums require different treatment than Verbenas or Ageratums, just as much as a Heath or a Camellia will require different treatment to an Eucharis or a Dipladenia. All I wish to say at present is, that though some may praise up spring bedding with its Daisies and Pansies, or winter beds with little evergreens or variegated Kale, and though others may abuse Geraniums, Verbenas, Ageratums, Calceolarias, &c., because they interfere with the old perennials or alpine borders, &c., yet there is no real reason why every large garden should not have its separate divisions for Roses, perennials, alpines, &c., and yet still be able to devote attention to those plants, which, after all, with judicious care and treatment will give the best return for the trouble bestowed upon them—those which are popularly called summer bedding plants, and in this category I do not include those which eventually, or rather for a certain fashionable period (and fashions do not last long), threaten to monopolise the summer beds—carpet bedding plants. I hope before long the tedious monotony of so many Echeverias, Sedums, Golden Feather Pyrethrums, Alternantheras, Iresines, &c., *et id genus omne* clipped and kept into shape to make coloured patterns, will gradually die out. I should like to know at a rough calculation how many yards of beds in the London parks are edged with Sempervivums or Echeverias, varied every now and then by that still more objectionable plant the yellow Chickweed. However, I have digressed from my point, which was to thank Mr. Taylor for his very seasonable article, and to call attention to it; and I would also thank Mr. Brotherton, especially for his concluding remarks in his excellent article on page 202.

And now let me say a few words to "A KITCHEN GARDENER" in answer to his remarks (page 187) with regard to horse dung. I hardly expected to make him a convert, but I do not mean mere droppings, used first perhaps in the Mushroom house, but properly fermented manure from stables, mixed with manure from the pig yards. Fungus is a mere bugbear to bad gardeners, and it is simply a sign of bad management if ever fungus is allowed to injure the roots of Vines, however much decayed leaf soil or horse droppings may be applied. Neglect of proper watering either to inside or outside borders, or forgetting from time to time to examine their condition, and fungus may prevail, but no good professional gardener will ever be afraid of it. Of course your correspondent's preference for cow manure is a mere matter of opinion, and I am still free to differ from him and to think that unless the manure is from stall-fed beasts that have oilcake or rape seed, &c., given to them, that no cow manure can equal the manure from the stables, and in this I am borne out I believe by general analysis.

Now let me turn next to Rose judging. I certainly did not mean that my friend "THE HEREFORDSHIRE INCUMBENT" should for one moment fancy I thought he wanted exhibitors to study the tastes of the judges, but merely to say that to a certain extent it would be the case if the names of all the judges were published. I do not think Mr. Cant is right in thinking that Canon Hole would consider size as the last consideration [Mr. Cant inadvertently wrote the name of Canon Hole instead of Mr. Camm], nor do I think any judge would, but merely that size should not be considered as the *summum bonum* as in monster Mangold Wurtzels or Swede Turnips. Again, I agree with nearly all Mr. Gould says, but do not think it right to deduct points for bad blooms, but merely to consider them as out of the reckoning. On his system of giving only one point for each good bloom, taking off one for every bad, and not counting the medium at all, a stand of forty-eight Roses might be reckoned as seven or eight, or twelve Roses with four very good and four bad would be counted as *nil*. I do not see anything to improve upon what has so often been adopted where I have judged with others, giving three points for the best blooms, two for medium, one for those not so good, but not bad enough to cut out, and then cutting out all the really inferior, and giving an extra point to a very superior. By carrying this plan out a stand of seventy-two Roses should be considered as capable of receiving 216 points, a stand of twenty-four, seventy-two points, and the points might be put on the cards. Those not in the habit of judging

by points might think it takes longer to do this, but if the plan as mentioned by Mr. Camm (February 7th) is adopted, each judge taking it in turn to count the first-class blooms in the stands selected, the other two judges being ready to agree or not, and then equally to choose out the indifferent or inferior blooms, it does not take long to add up the points, and generally saves time at the last. It is only very rarely that two stands of Roses are so nearly equal that they have to be placed alongside each other and closely examined, &c. Mr. Gould's plan would, I think, fail in bringing the points given to each stand to a minimum, and not allowing sufficient scope for differences; and if, as he suggests, the points were to be put on the cards with his system, the public would be surprised that so few points were given. I do not mean to say at the bottom there is much difference intrinsically between us. In any large exhibition of Roses each judge ought to have a small note-book given to him and a pencil, besides the card for writing the numbers of the winning stands, in order that the points in those stands selected for competition should be put down. It is generally unnecessary, as a rule, with competent judges to select more than six or seven stands, even if there are from twenty to thirty competitors; and twenty-fours and twelves are usually far more difficult to adjudicate upon than the larger numbers.

I am going to conclude this letter with a few remarks upon "D., Deal's," notes on the Gladiolus. I do not profess to be a large grower of them, but I quite agree with him that the corms are liable to disease, and that mere exhaustion will not account for the deaths caused by an unfavourable season; besides, as in every case the old corms die and are replaced by the new ones formed on the surface of the old, it seems to me quite contrary to the habits and growth of the plant to speak of it as mere exhaustion, because those corms which are the most highly manured and most carefully tended are in the end more liable to the disease. Last year was no doubt, owing to a cold spring and wet autumn, a most disastrous season for Gladioli. My own experience in a light loam and a naturally dry soil is in favour of leaving the corms in the ground all the winter, merely covering them with ashes, and not to touch them till the end of March or beginning of April. I have certainly found much sounder and firmer corms with this plan than by taking them up in the autumn and storing them, as I am inclined to think many bulbs besides Gladioli suffer from being kept too dry. I am not an advocate, again, for burying the corms too deep, nor for applying too much manure. Except in the case of those who wish to prepare the flowers for the exhibition table and in the colder districts it is better to start the Gladioli in pots, even if under stages so long as they are not drawn up, rather than to plant dry corms direct into cold ground. But either Kent or Somersetshire are much more favourable for Gladioli than the north-east of Yorkshire.—C. P. PEACH, *Cannes*.

ASPARAGUS CULTURE.

ORDINARILY good Asparagus may no doubt be grown by ordinary people in ordinary gardens by the ordinary plan detailed on page 217 by "A KITCHEN GARDENER;" but if superior produce is desired I think a mode of culture somewhat different than that recommended by your correspondent must be adopted. The very best way of growing Asparagus that I am acquainted with is to grow it in rows not less than 3 feet apart, the plants or stools being 18 inches distance from each other in the rows. Provided the soil is the same, and the plan as recommended by "A KITCHEN GARDENER" of having the rows a foot apart is adopted, and if the mode of growing it in rows thrice that distance asunder is also carried out, I do not hesitate to say that produce of double the size and weight will be obtained by the latter system of culture. I have adopted both those modes of culture for several years, and every year's experience tells me that if superior produce is desired the old custom of growing Asparagus in thickly crowded beds is unsound in principle and disappointing in practice.

Unless robust stems are produced in summer, and the foliage of the plants is exposed freely to light and air, stout crowns cannot form, nor can large heads be produced in the following spring. By growing the plants in crowded beds a vigorous growth of stems and healthy and functionally perfect foliage are impossible. It must not be supposed that the leaves of Asparagus because they are small have no purpose to fulfil, and that it is immaterial that they be crowded, and consequently

undeveloped. The tiny foliage of this plant is as important to its well-being as the expansive leaves of the Vine are essential to high-class Grapes, and overcrowding in both cases is alike injurious.

Perhaps your correspondent may desire to know what I mean by vigorous summer growth. I mean stems 8 feet in height, as thick at the base as a stout walking-stick, and having branchlets commencing at 2 feet from the ground, and stout in proportion to the main stem. Growth of that character cannot be had by the plan recommended on page 217. Stems of the kinds specified I have had the pleasure of growing for several years past, and the heads succeeding them have always been much finer than those cut from beds, good as the beds were and are. Since the single-row system is regarded as the best it may be a matter of surprise that Asparagus is grown in beds at all. The explanation is simple. The beds are not mine. They are very old family favourites, and my instructions are to treat them well and to keep them in good bearing condition as long as possible. I do so, and have the gratification of hearing from the owner that they are as profitable now as they were forty years ago; but they are not so much crowded as if they had been planted after the manner recommended by "A KITCHEN GARDENER," nor are they managed precisely in the way he has advised.

But to return to the single-row system. It may be urged that the plan of having the rows 3 feet apart is an extravagant one, and involves a waste of ground. I do not think so. I regard ground as being wasted when inferior crops only are produced, and consider it utilised when it is made to yield produce of the first order of excellence. Of such is the Asparagus when grown thinly, but when crowded in rows a foot apart it cannot be superior, although it may be passable.

My plan in growing this vegetable on the single-row system is to have the ground well and deeply trenched, then throwing out trenches similar to preparing for Celery, and enriching them by a liberal application of manure, vegetable refuse, and a fair seasoning of salt. In these trenches the crowns are planted and the soil is partly levelled in. When finished the rows are in slight hollows, which are filled with tank water (liquid manure) two or three times during the summer. The ground is manured annually, and is dug between the rows, a covering of rich manure being placed over the crowns and there left to decay; the hollows are preserved in the act of forking over the ground. During the summer a few stakes are driven into the ground at convenient intervals along the rows. A strand of tarred twine is stretched from stake to stake, going up one side and down the other, enclosing the stems between the two rows of string, and this secures the summer growth from being broken by the wind. This work is speedily done and is important. But the ground between the rows of Asparagus is not wholly unoccupied. Early Lettuces and other salads, rows of early Spinach and winter Onions, are grown, and seeds of various kinds of vegetables are sown for raising plants for after-removal, and thus the entire space is occupied until the Asparagus shades the ground. So far from this system of growing Asparagus being unprofitable, I have a strong opinion that if the produce of the quarter were sold that scarcely any other portion of ground of the same size under different cropping would be more remunerative. That, however, is not the question. The real object is the providing of that which so many covet—large heads of Asparagus. Sprue can be had from the beds.

If ground is wasted at all in Asparagus culture it is, I think, when four rows are grown in 4-feet beds having alleys of only 18 inches in width between the beds. I am not surprised that such beds do not continue profitable over a lengthened period; indeed, I should be very much surprised if they could yield anything like superior produce during the period named of ten to twelve years. If there is one place more than another where the money value of land and crops are considered in the cultivation of vegetables, it is in the market gardens in the vicinity of London. The land there is highly rented, and it is only by superior cultivation (which is the true economy), that the cultivators can obtain an adequate return for their labour and outlay. Hundreds of acres of Asparagus are grown in the "market grounds" alluded to, some being grown on the level, but by far the most in highly raised beds. The rule is to have the beds 3 feet wide with 2-feet-wide alleys between them. Two rows of Asparagus are grown in each bed. Thus there are two rows in a width of 5 feet of surface, while your correspondent recommends four rows in 5½ feet. I much prefer the market growers' distances, and I fear that if they were to

grow Asparagus on the crowding system advised they would instead of continuing prosperous gradually merge into bankruptcy. The highly-raised beds are probably adopted partly because the ground is very low, sometimes flooded, and partly because they afford facilities for cutting the heads.

In the after-management of the beds, too, I think your correspondent is "behind the times," but that is a question that I cannot go into now. I agree that his remarks on the preparation of the ground are sound, and his hints on sowing the seed and transplanting the plants are reasonable, but the after and general mode of culture he has detailed is, I consider, obsolete or ought to be.—A NORTHERN GARDENER.

ROYAL BOTANIC SOCIETY.

MARCH 27TH.

ALTHOUGH this, the first spring Show of the Society, was later than usual, while, owing to the mild weather of February, Hyacinths were very early, yet excellent collections of these flowers were staged. Cyclamens were extremely fine, and these, with valuable miscellaneous collections, contributed to from one of the most attractive displays we have seen arranged in the corridor and conservatory.

In the open class for twelve stove and greenhouse plants in 12-inch pots, Mr. Wheeler, gardener to Sir F. H. Goldsmid, was placed first for moderate-sized specimens, consisting of *Ericas*, *Eriostemons*, *Tetratheca ericifolia*, *Phalenopsis Schilleriana*, *Anthurium Scherzerianum*, *Clerodendron Balfourii*, and *Imantophyllum miniatum*. Mr. Roberts was second with a collection of nearly equal value. For six stove and greenhouse or forced herbaceous plants in flower, monocotyledons excluded (open), Mr. Roberts was placed first with *Symphytum caucasicum*, *Primula cortusoides*, *Dielytras spectabilis* and *eximia*, *Hoteia japonica*, and *Doronicum austriacum*. Mr. Wheeler's collection was disqualified, *Amaryllis* and Solomon's Seal, which were included in it, being monocotyledonous plants.

In the amateurs' class for six greenhouse Azaleas in 12-inch pots, Mr. Ratty, gardener to B. Thornton, Esq., The Hoe, Sydenham, was in his old place—first, with admirably bloomed standards. Mr. James, gardener to W. F. Watson, Esq., Redlees, was second with freely grown bushes having fine flowers. Mr. Wheeler was placed third for large thinly-flowered plants. In the corresponding class for nurserymen, Mr. Turner, Slough, was in the premier place with well-bloomed moderate-sized plants of Prince Albert, Duc de Nassau, Queen Victoria, Roi Leopold, Juliette, and Seduction. In the open class for six Chinese Primulas Mr. James was first with small fresh plants; Mr. Edmonds, Hayes, Middlesex, second, one of the plants, Carmine Queen, being very rich in colour; and Mr. Ratty third with large plants, but all having white flowers. Mr. Roberts was the only exhibitor in the open class for six hardy Primulas. He staged some ordinary varieties of *P. acutifolia*, *P. marginata*, and the pretty white *P. nivalis*, misnamed *viscosa*. Mr. Turner was the only exhibitor in the class for six forced Roses, and was awarded the first prize for handsome symmetrical plants about 8 feet in diameter. The blooms were fresh and fine, and the foliage excellent. The varieties were *Souvenir d'un Ami*, Duke of Edinburgh, Edouard Morren, Madame Leachme, Madame Victor Verdier, and La France. In the open class for six Deutzias Mr. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, was first with his cylindrically trained plants, 3½ feet high and 2½ feet in diameter—pillars of purity. Mr. James, Redlees, was second with dwarf bushes about 2 feet in diameter. In the class for six pots of Lily of the Valley (open) Messrs. Cutbush & Son had the premier place with excellent pots of large flowers; Mr. Douglas was placed second, and Mr. James third.

Cyclamens were numerous and superior. In the open class for twelve plants Mr. H. B. Smith, Ealing Dean Nursery, was placed first. The plants were splendidly grown, and the varieties were varied and excellent. Mr. Edmonds, Hayes, was second; and Mr. James third with very fine collections. In the amateurs' class for six plants Mr. James was first with dwarf vigorous plants, each averaging more than a hundred very fine flowers; and Mr. Lovesley, Isleworth, second.

We now come to the Hyacinths. In the amateurs' class for twelve plants, single spikes, Mr. Douglas was first, as usual, with fine spikes, but the foliage was rather drawn by the plants having been in flower for a long time. The varieties were King of the Blues, Mont Blanc, Koh-i-noor, Von Schiller, Macaulay, La Grandesse, Lord Derby, De Candolle, and Grandeur & Merveille. Mr. Moorman, gardener to the Misses Christy, Coombe Bank, Kingston-on-Thames, was a very close second with dwarfier and fresher plants, with slightly shorter spikes. Grandeur & Merveille, King of the Blues, and La Grandesse were extremely fine. Both the collections were excellent, and contained the best spikes in the Exhibition. Mr. Weir, gardener to Mrs. Hodgson, The Elms, Hampstead, was third. In the nurserymen's class Messrs. Cutbush & Sons were first; Mr. Hill, Alfred Street, Bow, second; and Messrs. Osborn & Sons, Fulham, third. The varieties were the same as those above noted with the addition of Gigantea, Grand Lilas,

Alba Maxima, General Pelissier, and Haydn. In the amateurs' class for twelve Hyacinths having any number of spikes either single or compound Messrs. Douglas and Moorman were again placed first and second respectively. General Havelock (blue) in the first-prize and Grandeur & Merveille in the second-prize collection were very massive. In the corresponding class for nurserymen the prizes were awarded in precisely the same order as in the nurserymen's class for single spikes.

TULIPS.—In the amateurs' class for twelve pots, four varieties, four plants in a pot, Mr. Moorman had the first place with admirably grown examples of Proserpine, Keyzers Kroon, White Pottebakker, and Vermilion Brilliant. Mr. Douglas was second, also with a good collection, but his Vermilion Brilliance were weak; the striped variety *Fabiola* was very good in this collection. Mr. Weir was third with dwarf plants. In the corresponding nurserymen's class the prizes were awarded the same as in the Hyacinth classes. Messrs. Cutbush's collection was composed of admirably grown and dwarf pots of Vermilion Brilliant, Proserpine, White Pottebakker, and Keyzers Kroon. Van der Neer was good in Mr. Hill's collection, and attractive were Rose Gris de lin, Princess Helena, silvery white, and Yellow Prince from Messrs. Osborn's. In the open class for twelve pots of Narcissuses, four varieties, Mr. Douglas was placed first for strongly grown examples of Newton, Queen of the Netherlands, Grand Monarque, and Grand Primo. Messrs. Osborn & Sons were second with well-grown dwarfier plants, Her Majesty in this collection being very good. Messrs. Osborn were the only exhibitors of twelve pots of Crocuses, and were awarded a second prize. In the open class for twelve bulbous plants distinct from any of the above Mr. Roberts, gardener to W. J. Terry, Esq., Peterborough House, Fulham, was the only exhibitor, and was awarded the first prize for a collection consisting of *Lachenalis*, *Muscari*, *Scillas*, and Dog's-tooth Violets.

Messrs. James Veitch & Sons exhibited a very fine collection of Hyacinths, for which an extra prize was awarded; the firm also had a similar award for a splendid bank of about eighty Roses. The majority of the plants were in 6 and 7-inch pots, each plant containing from six to twelve remarkably fresh blooms; the foliage also was excellent. Mr. B. S. Williams staged choice Palms, a small but brilliant group of *Amaryllises*, a few Azaleas, and other plants, and was awarded an extra prize. Messrs. Cutbush also had a similar award for a group of Azaleas and for an extensive and good collection of Hyacinths, Tulips, and Narcissuses. Azalea mollis in this group was very gay. Messrs. W. Paul & Son were worthily voted an extra prize for a remarkably fine collection of cut blooms of Camellias. The flowers were arranged with great taste, and were much admired. Messrs. James Carter & Co. staged an attractive group of a hundred Hyacinths. The plants were dwarf and sturdy, and many of the spikes very good; also very dwarf plants of *Dielytra spectabilis*, for which an extra prize was awarded. Mr. Lovesley, Isleworth, was awarded an extra prize for a collection of extremely dwarf Cinerarias. Some of the plants did not exceed 6 inches in height. The colours were also good. A similar award was made to Mr. Wiggins, Waverley Nursery, Tottenham, for Cinerarias.

Mr. Heims, gardener to F. A. Philbrick, Esq., Q.C., Avenue Road, Regent's Park, staged a splendid collection of Orchids. *Dendrobium litiflorum* was remarkably fine, as also were *D. crassinode Barberianum*, *D. Findleyanum*, and *D. Freemanii*. *Odontoglossum Alexandræ* was represented by one of the finest varieties we have seen, and *O. cirrhosum* was well grown and extremely attractive. *O. Pescatorei*, *O. triumphans*, *O. Andersonianum*, *O. gloriosum*, *O. Cervantesii*, and *O. maculatum superbum* were also in excellent condition. *Oncidium* were represented by *O. Weltoni*, *O. cheiroporum*, *O. Croesus longipes*, and *O. sarcodes*. *Angræcum sesquipedale* had six fine flowers. *Phalenopsis Schilleriana* and the brilliant *Sophranitis grandiflora* were included in the group. An extra prize was worthily awarded. A similar award was made to H. Little, Esq., Hillingdon Place, Uxbridge, for a small but highly meritorious collection of Azaleas: Leonie Van Houtte white; Roi d'Holland, glowing crimson; Dr. David Moore, very deep rose, double; Madame Louis de Kerchove, white, flaked rosy salmon; grandis, crimson; and Comte de Flandre, rosy purple, were very striking. Mr. Little had also an extra prize for a group of *Amaryllises*. Mr. James had an extra prize for a group of dwarf and well-grown Cinerarias; the plants were not more than 9 inches in height and had heads 2 feet in diameter. Similar awards were made to Mr. Smith and Mr. Clarke for remarkably fine groups of Cyclamens; also to Mr. Ratty for a well-grown plant of *Imantophyllum miniatum* with six fine heads of flower.

Certificates were awarded to Messrs. James Veitch & Sons for the scarlet perpetual-flowering Carnation A. Alégaire; also to Hyacinths King of the Blues, Grand Maître, and Queen of the Blues; for the fine deciduous Magnolia Halleana, for Pavonia Wiotii, and for the stately yet elegant Fern *Microlepia hirta cristata*. Mr. B. S. Williams had a certificate for the same Fern, also for another Fern with the formidable name of *Anemidictyon phillytides tessellata*. It is a distinct Fern with large Pteris-like fronds, and produces spikes of inflorescence after the manner of *Osmunda regalis*. Messrs. Veitch further had certificates for

Odontoglossum cirrhosum var. *Klabochorum*, richly spotted; and for *Cypripedium porphyreum*, the result of a cross between *C. Roezlii* and *C. Schlimii*. It somewhat resembles *C. Sedeni*, but is lighter in colour than that valuable variety. Messrs. Osborn and Sons had a certificate for *Abutilon Lady of the Lake*, a free-growing and flowering variety having bright rose-coloured flowers with dark pink veins. Similar awards were also made to Mr. Smith, Edmonton, for gold-laced *Polyanthus Duke of Wellington*, and to Mr. Clarke, Twickenham, for *Cyclamen Brilliant*; colour ruby crimson, very rich.

The Duke and Duchess of Teck and a large company of visitors attended the Show.

NOTES AND GLEANINGS.

THE spring Show of the MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY, which was held in the Town Hall, Manchester, on the 19th inst., was, we are informed, highly successful both as regards the extent and quality of the exhibits and the attendance of visitors. The Society's gold medal was awarded to Mr. Leech, Fallowfield, for Orchids, and the silver medal to Mr. Joseph Broome for miscellaneous plants. Certificates were granted to Messrs. Standish & Co., Ascot, for fine pots of Lilies of the Valley and excellent plants of *Chorozema cordata splendens*; to Mr. B. S. Williams, Holloway, for a collection of Cyclamens, also for *Azalea Princess Maude* and *Dracæna Berkeleyi*; to Mr. Henry Shaw, Buxton, for *Dracæna Goldiana* and *Rhododendron Dalhousianum*; to Messrs. G. and W. Yates and Messrs. Caldwell, Knutsford, for miscellaneous collections of plants; to Mr. Leppoc for Cyclamens; and to Mr. S. Barlow, Middleton, and Messrs. Zocher and Schneevogt, Haarlem, for Hyacinths.

THE following are among the ORCHIDS now flowering in Messrs. Veitch's collection at Chelsea. *Dendrobium Wardianum*, crassinode, Devonianum, bigibbum, cambridgeanum, densiflorum, and lituiflorum, all of which are very fine, the first three splendid. *Odontoglossum Cervantesii*, triumphans, cirrhosum, some very fine varieties; *Andersonianum*, luteo-purpureum, *Pescatorei*, cordatum, prænitens, crispum, *Hallii*, *Roezlii*, *Alexandrae*, and the distinct and charming *O. roseum*. Several fine *Vandas* are in flower, including *V. cristata*. *Oncidium fuscum* and *sarcodeum* are attractive, *Cymbidium eburneum*, *Angræcum citrinum*, *Cattleya citrina*, the small wax-like Australian Orchid *Sarcophilus Fitzgeraldi*, *Epidendrum Wallisi*, several *Phalaenopsis* and *Cypripediums*, and a few *Masdevallias*, including the grotesque *M. chimera*, are all ready for Ghent, and, weather permitting, would form a very fine group; but the frost winds and snow squalls prevailing will perforce keep many valuable plants in England that otherwise would have been at the Great Exposition Internationale during the first week of April.

A WHITE FORCING ROSE of great value is *Coquette des Blancches*. We recently observed it in Messrs. Veitch's fine collection at Coombe Wood, and no Roses were more beautiful, and no variety was flowering more profusely. It is a hybrid *Noisette*, and resembles *Baronne de Maynard* and *Boule de Neige*, but those varieties will not force. *Madame Lacharme* is proving to be a forcing Rose of the greatest merit, and so is *Duchess of Vallombrosa*. *Fortune's Yellow*, as forced, was very thin and unsatisfactory. *Belle Lyonnaise* is a grand Rose for walls or pillars.

A CORRESPONDENT, "W. K.," informs us that of *EUCALYPTUS GLOBULUS* he has five three-year-old trees growing by his croquet ground. He lives near Arundel in Sussex.

A GERMAN VITICULTURAL SOCIETY has just been formed at Cassel. For the present the Society intends to take up two important matters—viz., 1, discovering the best method for the destruction of phylloxera, and 2, the suppression of the secret manufacture of wines by artificial means.

A CORRESPONDENT, "RAMALHO," says, "I have had some seed sent me from Australia of a shrub called *ROSELLA*, which they say is covered with crimson flower buds, of which they make a most delicious preserve." Can any of our readers tell what the proper name of the shrub is?

MR. WILLS the florist used nearly three thousand Tea-scented Roses in the floral decorations on occasion of Miss Rothschild's wedding last week. It was a very pleasing and happy idea of Miss Rothschild to surround her magnificent wedding presents with thousands of lovely Rose blooms. The great difficulty was to obtain them. Mr. Wills had to apply to nearly every Rose-grower in the three kingdoms, besides

scores of private growers. Besides the Roses he had a splendid display of *Odontoglossums* and *Phalaenopsis*.

PERHAPS in no practice of gardening are errors more frequent than in SOWING SEED OF TENDER PLANTS TOO EARLY, and in frames and other structures which are highly heated. Seeds of half-hardy annuals, such as Stocks, Asters, Marigolds, Phlox Drummondii, and other plants, also of Tomatoes and Vegetable Marrows, are too often sown early and thickly when sufficient means are not afforded for growing on the plants in light structures so as to insure a stout, dwarf, healthy habit of growth. Thousands of plants are spoiled annually and much seed is wasted by over-haste in sowing, and necessarily leaving the plants for a considerable time crowded together in seed-pots and boxes. Far better is it for those whose glass conveniences are limited to wait until April before sowing seeds of plants of the character named, and then to sow them thinly in frames which are moderately heated; the plants then grow on unchecked and are much more satisfactory than if the seed had been sown two months earlier. Much injury is often done by sowing seed in high temperatures and subsequently transplanting the seedlings into the cold soil of the garden. This applies to both flowering plants and culinary vegetables.

MR. HENRY F. FOY writes as follows on *LAPAGERIA ROSEA*:—"I have a plant in a box 3 feet by 1 by 2. It has been in it about four years, and the branches now half cover the conservatory roof. It began flowering about the end of August, and although the thermometer sometimes went down to 32° the plant continued in beauty until nearly the end of February. Sometimes there were nearly three hundred blooms in colour at once. I wish to know whether I may top-dress it with 2 or 3 inches of last year's Cucumber bed. I noticed someone in the Journal was surprised that a *Lapageria* flowered on the old wood; mine always does."

AS winter and spring flowering plants few are more useful than *EPACRISES*. The number of varieties is so great as occasionally to be bewildering. A few of striking decorative value are the following, which were recently flowering in the nursery of Messrs. W. Paul & Son at Waltham Cross. *Devoniensis*, bright red, very gay; *Fulgens*, salmon pink, very fine bells; *Alba odorata*, white; *Archduke Stephen*, red, fine; *hyacinthiflora candidissima*, a well-known and valuable white; *impressa coccinea major*, scarlet, very bright; and *Walkerii*, magenta pink, distinct in colour and attractive. Those varieties grown in masses produced an imposing display.

THE Plum trees in the ORCHARDS in THE THAMES VALLEY are now in full blossom. The trees present a beautiful appearance, but it is greatly to be feared that the severity of the frosts which have recently occurred will seriously interfere with the setting and swelling of the fruit. Plum blossom is, however, proverbially hardy, and as the soil and atmosphere were dry when the frost occurred, sufficient of the blossom may have escaped destruction to produce what has not been seen during the past three years—fairly good crops of fruit. The Apple trees are profusely studded with blossom buds which are swelling too quickly, but Pear blossom is comparatively sparse. The hardy fruit crop of the year is undoubtedly in great jeopardy, notwithstanding that the dull cold weather which has lately prevailed has sensibly retarded the expansion of the blossom.

MR. THOMAS JOHNSON, gardener to Colonel Battersby, county Meath, for sixty years, died lately at the age of 106. He retained all his faculties to the last. Longevity in his case appears to have been hereditary, for his father, it is said, died at a still riper age, namely 115 years.

THE mild winter has been extremely favourable to the winter and spring GREEN CROPS. Broccoli have been and are abundant and good, and Cabbages promise to be plentiful and early. Hundreds of acres of them in the market gardens around London are looking extremely well, and in some instances cutting has already commenced. The Cabbages in the market fields are never earthing up in the manner usually practised in gardens, earthing being considered not only unnecessary but injurious, by preventing the rains penetrating the soil around the stems. Instead of "one earthing-up and done with" the ground is continually stirred amongst the plants; once a week at least if weather permits the ground is hoed, the expenditure of labour being found especially profitable in promoting the growth of the plants and accelerating their bearing. It is singular that while vegetable crops are grown so excellently along the banks of the Thames west of the

metropolis, that Brussels Sprouts will not succeed, and their cultivation has been practically banished from the fertile district in question.

— THE *Sydney Morning Herald* states that in New South Wales and Victoria at a considerable depth below the surface of the earth the RELICS OF A FLORA which has long since passed away are being gradually brought to light. From these remains of primeval vegetation it would appear that where Gum trees and Apple trees now prevail a very different order of trees once flourished. In the appendix to the report of the mining surveyers in Victoria for 1877, a new fossil of the genus *Wilkinsonia* is described. Specimens of this (*W. flaminata*) were procured at a depth of about 130 feet, under basalt at Benerece, and also in the blacklead of Gulgong at a depth of 175 feet, beneath a layer of basalt. Baron F. von Mueller, to whom the specimens were submitted for examination, is of opinion that the plant producing the remarkable fruit now existing only in a fossilised state may have belonged to the order of Sapindaceæ. He also observes that "the fossil treasures of that particular period, the upper pliocene, are by no means exhausted."

— THE CINERARIAS in Mr. Watson's garden at Isleworth are this year remarkable for the excellence of the newer varieties. For years Mr. James has devoted special attention towards improving this indispensable spring flower, and he has certainly good reason to be satisfied with the results of his labours. The flowers are not so remarkable for their great size as for their excellent form, great substance of petal, and rich and varied colours; the plants are also extremely dwarf and sturdy in habit. The self-coloured varieties are extremely striking, ranging from satiny rose to glowing magenta and crimson; some of the blues and purples are also remarkably fine. Out of the hundreds of plants grown not a dozen are to be found of inferior quality, and the flowers of these are being cut for vase decoration. Nearly all the plants are flowered in 48-sized pots. Mr. James is strongly opposed to the early sowing of Cineraria seed. His mode of culture is to sow about the end of July, and to grow his plants rapidly and without check through the cool autumn months. The *Calceolarias* are in splendid condition. The plants are never stopped, but branch out naturally and form specimens 3 feet in diameter and about half that in height. The plants are remarkably dwarf and vigorous. *Cyclamens* have been in great beauty for the past four months and are beautiful still. The strain is an excellent one, the white varieties being very pure, and the darks rich. Mr. James's practice is to sow the seed of these plants as soon as it is gathered.

— THE noble range of glass in SIR HENRY PEER'S GARDEN AT WIMBLEDON HOUSE which has hitherto been devoted to plants will in future be chiefly utilised in fruit culture. Three of the houses have been planted with Vines, two with Figs, and one with Bananas. The Fig houses have indeed undergone a transformation. Only one tree has been planted in each house, but these were large enough to occupy the trellis as soon as planted. They are old trees which have been taken from the garden walls. One of them covers a trellis 30 feet long and 15 feet wide; and the other is nearly as large. Not only have these immense trees apparently become established since November, but many of the autumn-formed fruit are swelling freely. It has been no light task to remove and get these trees into the houses; but Mr. Ollerhead is a gardener who combines skill with energy, and he is probably never so happily engaged as when facing a difficulty and overcoming it. First-rate practice is to be found in these gardens, which cannot be visited without yielding useful hints worthy of being recorded.

ROSE JUDGING.

MY article on this subject certainly had the desired effect of extracting valuable information from many readers of the Journal, and among others the opinion of one who rarely writes to you.

After the various opinions are sifted it will be seen that there is only one point upon which there is much difference of opinion, and that is the matter of size. The northern growers Mr. Pochin, Canon Hole, and my genial friend C. P. Peach, have all a hankering after size, perhaps sometimes even at the expense of form. And this is not to be wondered at, for they live where the soil is so strong and rich and well adapted for Briar Roses, that they are able to produce larger

blooms than we are in the south or west; but if the subject is impartially considered I think that the verdict will be given to us. The remark of Mr. Pochin's, mentioned by Mr. Peach, "that this might have been that, but that could never be equal to this," alludes, I suppose, to some stand of very large blooms, but coarse and past their best. Undoubtedly I and those who think with me—and I think I can claim such rosarians as Mr. George Paul and Mr. Benjamin Cant, and Mr. Baker and Mr. Jowitt among amateurs—would give the preference to the stand which contained the smaller but fresh and more symmetrical blooms.

I seem, so far as the letters that have appeared in the Journal may be taken as a guide to general opinion, to be in a minority of one with regard to the estimation which I place on Teas. There is no doubt much in what Mr. Baker says as to the Teas having a class of their own, but in reply may I remind my good friend that latterly a horrible custom has been creeping in of a class for Hybrid Perpetuals alone? so that if this ever-to-be-deprecated innovation takes firm footing the poor Teas will have lost their privilege.

"D., Deal," thinks no doubt he gives me a rap on the knuckles by informing me that *Maréchal Niel* and *Cloth of Gold* are Noisettes. I am aware that the latter undoubtedly is of that family, but there is considerable doubt as to the former. Canon Hole calls it, I think, a Tea Noisette, but it certainly partakes much more of the Tea than Noisette family. Apart from this, it is highly inconvenient when writing on a given subject to repeat time after time the full title of the class, Teas and Noisettes, though everyone knows that when speaking of Teas I include Noisettes.

I was unable to be at the General Committee Meeting of the National Rose Society on Shrove Tuesday, as we have no late train on our line, and so I could not get back in time for service on Ash-Wednesday, but I hear that some rules for judging were drawn up. When these appear we shall be able to discuss them in the columns of the Journal. Meanwhile I suppose the last word has been said on this most important subject.

Before concluding this letter I should like to say a word upon the loss the Rose world has sustained in the death of one of our best judges, and one who in particular gave attention to Tea Roses. John Keynes of Salisbury loved Roses with all his heart, and grew them too in a way that, considering the disadvantages under which he laboured, was highly successful. He had a miserable soil—in fact I do believe it is as bad as mine, and yet he managed to grow fair plants. The *Manettis* were growing literally in a bed of stones; and though the plants never attained to such dimensions as those from such soils as King's Acre or Cheshurt, yet they were always well rooted. He managed to grow good standards by combining Dahlia cultivation with that of the Rose. The soil was very richly manured for Dahlias in a sheltered spot by the river, and after the Dahlias were removed the Dog Roses followed, and they did remarkably well in this rich soil; after these were sold off the Dahlias followed. So that every third year the soil was richly dressed, and also received the benefit of a change of crop. There is no more necessary condition in Rose-growing than this—viz., that the same soil should not be devoted for more than two or three years to Rose cultivation. Mr. Keynes was a most kind and genial host; he was always ready to welcome strangers as well as friends at his nursery and house. When I first commenced Rose-growing I wrote to ask him if I might come and see him. He gave me a ready invitation and a warm reception, told me everything I wanted to know, and entertained me most generously. He was a very shrewd man of business, and has, I believe, left a large fortune. His shrewdness showed itself to me in an amusing manner on one occasion. I was asking him all sorts of questions, and the dear old man was giving me the best information, when suddenly he turned round, fixed his penetrating eyes on my face and said, "You don't intend to set up against me, do you?" I assured him on this point, and he regained his composure and doubted me no more. The last time I saw him was on the day of the National Rose Society's Show at St. James's Hall. He had been judging the small classes and travelled home with me. It may be a pleasure to Mr. Smallbones to know that he agreed with me as to the marvellous perfection of his stand of twelve Roses which won your cup.

Although there is no Rose that bears his name, nor, indeed, has he introduced any with the exception of the sport from the Tea Rose *Madame Willermoz*, Letty Coles, yet his name will long live in the memories of Rose-growers, and his genial

face be much missed from our great Rose exhibitions, for we can ill afford to lose one from the small but select band of great exhibiting rosarians. Let us hope that his successor will continue to exhibit that queen of flowers with which the name of John Keynes has been so long and honourably connected.—WYLD SAVAGE.

IBERISES.

At this period of the year these extremely hardy and early dwarf perennials are just unfolding their flowers, and are making borders and rockeries cheerful by the dense profusion



Fig. 36.—*Iberis ciliata*.

of white trusses which the plants produce. Worthy of being added to the species which have been recently alluded to in your Journal is *I. ciliata*, which is distinct both by its slender growth and rosy purple-tinted flowers. It is particularly suitable for occupying a sunny position on rockwork, and should have a place in that interesting appendage to the garden the alpinery. It is a plant that cannot endure being crowded, neither should it be replanted more frequently than can be avoided. Rather than attempt to increase it by division I prefer striking cuttings in gentle heat. They root quite readily when inserted at this period of the year, and make small flowering plants by the following spring. It may also be increased by seed sown as soon as ripe.

This little plant, says the "Botanical Magazine," is a native of Caucasus, growing in the vicinity of the hot springs of Mount Constantine. It may easily be confounded with *Iberis Garreuxiana* of Allioni, which is considered by Willdenow as a variety of *sempervirens*, and is the plant usually met with in our collections under the name of *Iberis saxatilis*; but *I. ciliata* may be distinguished by the leaves being under all circumstances minutely ciliated and the stem hairy near the flowers, whereas in *Iberis Garreuxiana* the whole herb is quite smooth.—D. D.

ROSE SHOW BOXES.

WHEN a certain famous surgeon was consulted on his special subject his invariable answer was, Buy my book! "PLOUGH-BOY" and other intending exhibitors can hardly do better than "buy" Canon Hole's book, or at any rate consult it as to the best form of box. That given at page 243 (edition fourth), leaves very little to be desired in the way of utility. The box figured there is a twenty-four box. For a beginner

perhaps one to hold twelve might be better. The older-fashioned boxes (shown in *Journal of Horticulture* of February 14th, 1867, in an article written by Mr. A. H. Kent), are cheaper and more handy, but labour under the disadvantage of having no cover; also, as the holes for the tubes are cut there through the surface, it is not possible to re-arrange the box so as to contain a different number. If the interior of the box be kept perfectly clear, and the tubes imbedded in bran or sawdust, a twelve box may be made a six, or a twenty-four box without much difficulty re-arranged for twelve triplets, the usual surface of moss being placed above afterwards by way of bedding for the Roses. It will be obvious that these remarks are intended merely for beginners and small exhibitors.

It will be seen in the forthcoming schedule of the National Rose Society that the attention of their indefatigable Secretary, Mr. Dombain, has been directed amongst other things to this very question—namely, the improvement or further development of exhibition boxes. A prize proposed by him and accepted by the Committee is about to be offered. "For the best exhibition stand other than those in ordinary use, and covered with material other than moss."

LOBELIAS FROM CUTTINGS.

LOBELIAS from seed are so unsatisfactory that I am now depending on plants from cuttings only. A few good varieties—seedlings—were selected for growing a couple of years ago, but St. Martin's has superseded these. Magnifica is also grown. Do any of your correspondents or readers know of any sort having the same habit as the last named and better? also if there is any variety of the same shade of colour as Omega, but with a good habit of growth? I shall be obliged by information.

Returning to the raising of plants of Lobelias from cuttings. These are so easily managed both as regards wintering the stock plants and propagating them in spring that it is doubtful if anything is gained in an economical view by raising seedlings. The real difficulty with many lies in wintering the stock plants. It merely requires a dozen or two plants to be potted when the rest are consigned to their summer quarters in the flower garden: 5-inch pots will be large enough. These may be flowered during the summer and autumn in a greenhouse, and at the approach of winter transferred to quarters alongside Verbenas, &c., where they can be kept in a gently growing condition throughout the winter. I cannot exactly say how many plants each pot will furnish by the time planting-out season comes round—fifty at least from each may be safely reckoned on for a first batch in February, and propagation may proceed up to ten days before they are required for planting. Plants taken from the beds in September, pulled in pieces and potted, with same winter treatment as above recommended, do very well. Whole plants potted from the beds are prone to decay in the centre of each, which decay extends till not a remnant is left alive.—R. P. BROTHERSTON, *Tynningham*.

HINTS ON LANDSCAPE GARDENING.—No. 2.

VILLA GARDENS.

LAYING-OUT of villa gardens is a work frequently beset with difficulties that are unknown in the treatment of large gardens. A very limited area of space in villa enclosures, the stiff uncompromising formality of boundary lines, and the proximity of other houses being all sources of annoyance that are not often overcome successfully, and yet they ought to be if a due amount of skill, taste, and judgment is brought to bear upon the work. No doubt the site and surroundings of every garden has its own peculiar features, requiring special study in order that they may be dealt with successfully, but a few hints devoted to a general consideration of the difficulties enumerated cannot fail to be useful to a large and important section of the community.

Now, the first object usually sought for is privacy, and in striving to obtain it the entire garden is frequently spoilt. "My garden is overlooked by my neighbours' windows. What fast-growing tree can I plant to shut them out?" is a query to which the answer, but too often given and acted upon, is "Plant Lombardy Poplars," and so it comes to pass that, instead of concealing the angular outlines of the garden, they are made doubly offensive by being defined by a row of trees chosen in order that the garden may not be encroached upon by wide-spreading branches, the advantages and pleasure to be derived from cool shade in summer being apparently quite lost sight of.

Let us see if we cannot find something among the ample store of materials ready to our hands wherewith we may not only make an enclosure but impart an ornamental feature throughout the year—changing in its aspect with the seasons, and yet never losing the elements of beauty. To this end we will avoid straight lines or rows of one kind of tree. Tall-growing trees shall be planted near the boundary of the garden, and also be brought boldly forward into it, mingled with shrubs deciduous and evergreen arranged with due regard to height, size, form, and colour; not in such precise gradation as to appear severely formal, but in broken yet graceful order, rising and falling in flowing rounded outlines.

Near Blackheath, at The Firs, Lee, the residence of J. W. Larking, Esq., there is a garden which is a striking example of how thoroughly well privacy may be secured in a small garden much overlooked by the windows of adjacent buildings. There

is more real beauty in this confined space of an acre or two than one often meets with in large gardens. Let us glance at its most salient points. Close to the house are a few small beds, made gay with flowers in summer and planted with dwarf shrubs in winter. They stretch along in front of the windows and occupy very little more space than an ordinary border. Beyond the beds is an unbroken sweep of lawn extending nearly to the end of the garden, but not quite, raised banks thickly clothed with shrubs shutting in the end of the lawn, and along the sides there are shrubs and trees thick set behind, but so much broken along the front that strips of lawn run in among them, forming charming nooks and glades so well contrived that one is almost led to think they lead to other lawns. Some of the shrubby promontories come boldly out upon the turf, ending in a rounded point left bare for flowers. These spaces so placed, with the soft green turf in

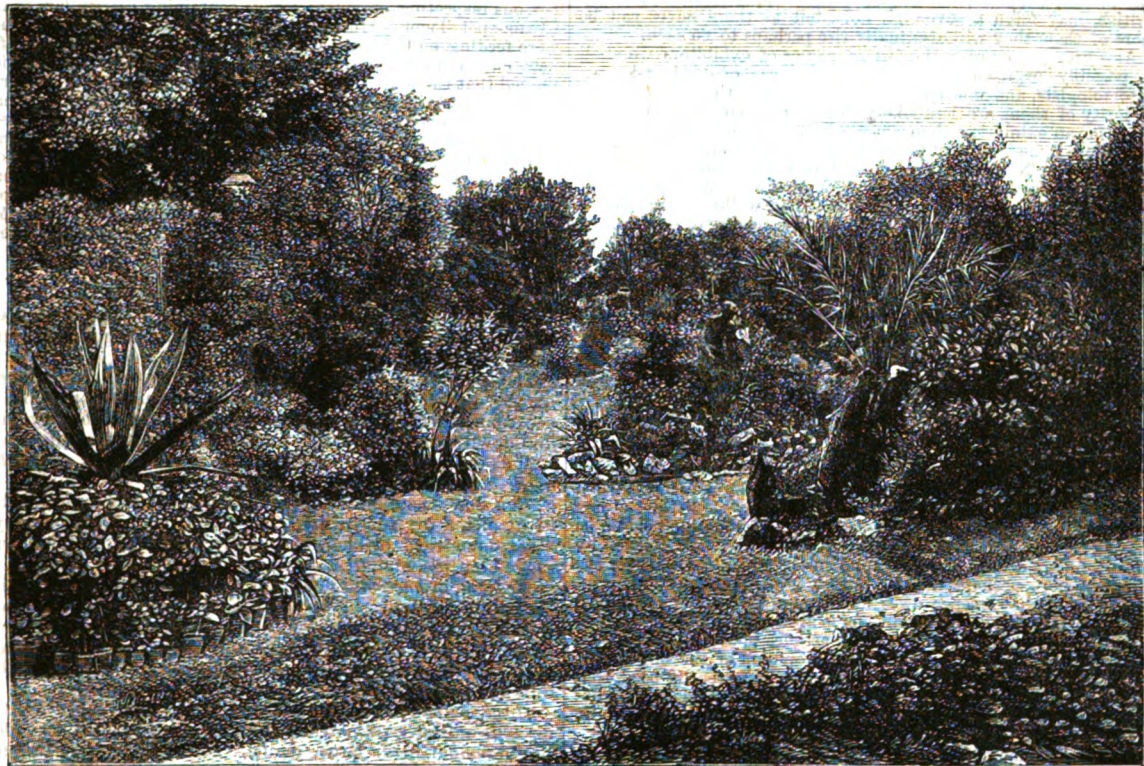


Fig. 37.—MR. LARKING'S VILLA GARDEN.

front and shrubs behind, are the very perfection of a flower bed, bright colours with such surroundings being much more telling than they ever can be in a detached bed.

One nook near the house and somewhat apart from the lawn is so beautiful and affords such a valuable lesson that I send you a photograph of it, which Mr. Larking has kindly placed at my disposal. It has a square outline, and is hardly so large as most of the front courts to which attention was called on page 199, and yet it is a model of tasteful arrangement. It is not often one can approve, much less admire, the manner in which vases or statuary are introduced into confined spaces, but here the Naiad and little pool of water impart so much life and expression, and such an air of grace and quiet beauty pervades the charming little miniature, that all thought of criticism is lost in the admiration which cannot be withheld.

In other nooks and corners various other features present themselves in a natural and therefore pleasing guise. A little pond for aquatics, a Fern bank, mixed groups of choice shrubs and hardy Heaths, rock beds with appropriate hardy plants and dwarf spreading shrubs, a bed of Clematis Jackmani in an inconspicuous position, and yet so placed that when its flowers open they cannot fail to attract attention. Lofty trees also play an important part here, some very large Elms and two of the finest Hickories in this country being most conspicuous. Another tree of lowlier growth, but quite as im-

portant in its way, is singularly well placed at a corner near the house. It is the Snowy Mespilus (*Amelanchier Botryapium*), a standard some 20 feet high, with a spreading head of fine spray that is laden with white blossom in spring.

As seen from the house the bank of shrubs at the extremity of the lawn appears like a boundary of the garden, but as we approach it we find an opening in the bank, not in the direct line of sight, but on one side, whence a path takes us in a diagonal line to a door in a wall; we open it and meet with a delightful surprise, for we enter an exotic fernery—a large lofty building containing thousands of Ferns, but not an inch of staging, for the good taste we admired so much in the open garden is even more conspicuous here. Out of banks and mounds thick set with exotic Mosses spring the Ferns in such profusion as is absolutely bewildering. Giant Tree Ferns towering aloft spread out their huge frondage over a multitude of rare kinds of lowlier growth, all flourishing with a vigour unknown to plants in pots, for here most of the plants are turned out into mounds of rich soil, and the roots are suffered to ramble in it unchecked. Our enjoyment of the fernery was enhanced by the sight of flowers in a winter garden adjoining it, the plants there also being planted or plunged in raised beds and mounds, in pleasant contrast to the staging and formal rows of plants in pots that is usually seen in such buildings. I am tempted to dwell upon these buildings and

their contents, but must not wander farther from the subject of these notes. Villa gardens, however, are so important that I must return to them in my next communication.—EDWARD LUCKHURST.

THE NATIONAL ENTOMOLOGICAL EXHIBITION.

(From a Correspondent.)

HAD I forgotten my destination last Wednesday (20th inst.), the circumstance that a party of men were carrying the familiar advertising boards with a figure of a butterfly displayed thereon would have reminded me that a sight quite unusual was to be witnessed at the Royal Aquarium, Westminster. It was added that £20,000 is estimated to be the money worth of the specimens on exhibition. Perhaps the amount seems preposterous to some, but I do not think that it is an overvaluation. Insects are likely to become more valuable as the years go on and a taste for show collections increases, when they are irreplaceable or nearly so; for instance, specimens of the large copper butterfly, really British, may fetch a sovereign now, but as there never can be more of them they will eventually rise perhaps to £5 each.

At a first glance over the list of names of exhibitors we shall be possibly surprised at the absence of some of our best-known entomologists, and one reason for this is that these, at least the majority of them, are less likely to be prepared to get up show cases for an exhibition than some who are quite as indefatigable, but whose fame is limited to a small circle of friends. Thus, were Doubleday or Newman living now I doubt whether they would have been enrolled as exhibitors, though always willing to allow entomologists to make an inspection of their well-nigh superb collections. Others, again, who have done the science of entomology much service have not been collectors, but rather observers or anatomists. A very large amount of thanks is certainly the due of those gentlemen and ladies who have at a risk of injury placed before the public a show of insects that is hitherto unrivalled; and though some of these exhibitors are modestly set down as artisans or working men, I would fain believe that every entomologist is a gentleman.

The arrangement of the cases and other objects exhibited, large and small, is not on the whole to be complained of. It has been a matter of necessity, through the limitation of space, to put some things in the background which the entomologist, if not the ordinary sightseer, would like to have had brought closer to him. (I notice, by-the-by, that not a few entomologists are long-sighted, and though they can see an insect a dozen feet off, when they have it in hand they are apt to bring it within a few inches of the nose for close inspection.) Persons inclined to be fastidious may object to the display made in the Exhibition by those who are dealers in insects and insect apparatus. Under the circumstances, perhaps, a little puffery is pardonable, and it is an honest truth that science owes much more to some of those who are professional collectors than she is aware of or is likely ever to pay. Looking at some of the tasty articles shown as part of the collector's outfit, one is almost of the opinion of the old angler, who was so charmed with the rod and flies he generally used, that he said the fish ought to be delighted to come and be caught! Some of our best entomological captures, however, have been made with rough and home-manufactured implements.

British entomology is, speaking generally, more prominent in the Exhibition than exotic entomology, and in the latter division, as we should expect, the butterflies and beetles make the chief display. With the exception of Europe, and there even much remains to be done, our present knowledge of the insect races of the world is in an unsatisfactory condition. In the case of the moths, and other night-fliers particularly, it will not be increased until there are more residents in other lands who will take the pains to breed or rear species. The best foreign collections are those shown by the Rev. A. Walter and General Ramsay, and by two dealers, Messrs. Cook and Meek. Mr. S. Stevens has sent his magnificent collection of British butterflies with many rarities and varieties, and the fine collections contributed by Messrs. Wellman, Elisha, and Machin deserve much praise. The minute species belonging to the last gentleman must have required immense patience in setting. Probably many will consider the gem of the Exhibition is the series of cases belonging to Lord Walsingham, who has preserved with marvellous dexterity a host of caterpillars common and rare. Mr. Gedde also sends instructive cases of caterpillars and transformations. Mr. Tuely's collection of Lepidoptera obtained in his house, garden, and grounds at Wimbledon proves the richness of some London suburbs, for there are about 350 species, seventeen of these being butterflies. It would also have been interesting to have had a show of other species occurring thereabout, say on the well-known common and in Coombe Wood. Of local insects we have some valuable illustrations, as in a Perthshire collection and in one from the fen districts. By the joint labours of three gentlemen, Dr. Power and Messrs. Stevens & Champion, we have a splendid array of British beetles containing many rarities.

But, passing over unavavoidably other collections that also deserve commendation, I must remark with regret that there is not much

that is novel or valuable in economic entomology. Two small cases show the ravages of the Goat Moth (*Zyaleutes Cossus*), and another shows the work of small larvae on Fir cones and Fir bark. In addition to these the horticulturist may look with advantage on a few cases illustrating the agency of insects in producing galls and excrescences. The large and well-arranged collection of species belonging to the order Hymenoptera, which represent a portion of the entomological labours of Mr. F. Smith, have an interest to the apiarian as well as to the gardener, for there are many species the latter knows, or ought to know full well, since they belong either to his friends or his foes, and Mr. Capper's small educational collection of transformations is also good. The small department devoted to silk-producing species attracts lady visitors. Here Dr. Wailly's exhibit takes the first rank, following which are the specimens shown by Lady Nevill, Mr. P. Bannister, and M. Bourdier. It is disappointing to perceive that Messrs. Neighbour & Sons are, so far as I noticed, the sole representatives of apiarians; but their wives and apparatus drew some notice, especially as there were two cases of live bees. Also I saw persons inspecting curiously a cage containing caterpillars of the Cream-spot Tiger (*Arctia villica*), and I at first thought they were feeding on Cabbage, and that we had here an instance of a new enemy to the kitchen garden; but a closer examination proved that the leaves were those of the Dock, and their withered condition suggested that the caterpillars were thankful for small mercies. A choice and curious object that some people missed was the impression of a butterfly's wing brought from a slate quarry in Oxfordshire, where it was found in the colliery strata. Resisting the fascinations of an exhibition of performing seas, which had appropriately a place in the gallery, I left in the hope that this Exhibition will have numerous successors, and that Mr. Carington will be spared to take an active part in organising them.

EXHIBITION ROSE POINTS.

THE following notes were written for a Rose committee schedule, and the publication may be useful in guiding young exhibitors and instructing the public:—

The Committee of the — Rose Society will feel obliged by the Judges making their awards as much as possible in accordance with given points of excellence, which they have laid down under four heads for the guidance of exhibitors as well as the visitor. Classes are *bad*, *medium*, *good*, and *extra good*.

Bad flowers are all small-petalled flowers less than 2 inches in diameter, overblown and coarse, thin and showing an eye, not symmetrical or one-sided, badly quartered, hollow, with ragged outline, and all with stained and damaged petals.

Medium, or *one-point* flowers, are those just admissible within the exhibition pale. They are usually defective in one essential to a good flower, as large and symmetrical but too flat or rough; of good shape, substance, and colour, but small; again, with the three essential S's—shape, size, and substance, but dull and poor in colour.

Good, or *two-point* flowers, are those remarkable for fine circular outline, symmetrical and full centres, good size, clear bright colour, with large, regular, and stiff petals. Baronne de Rothschild is a fair type for a good exhibition Rose.

Extra good, or *three-point* flowers, are those possessing the above qualities in an extra degree of perfection. Grand high-centred flowers, very large and circular, with beautifully arranged or imbricated petals of great substance and brilliancy.

It should be borne in mind that the awards are given for the finest specimens of floricultural skill more than for mere novelty or rarity.—H. C.

HYACINTHS AT COOMBE AND CHELSEA.

DURING former years it has been the custom of Messrs. Veitch to arrange a grand display of Hyacinths, Tulips, &c., in the nursery at Chelsea; but this year neither the Hyacinths in the home nursery nor the contributions to the shows at South Kensington and Regent's Park have been of the usual high order of excellence for which the firm has become famed. Nor is this wholly, or indeed mainly, the result of the "bad season" for bulbs in Holland last year. That that circumstance has had a direct influence in contributing to the general low standard of this year's flowers may be admitted; yet in spite of that fundamental drawback the Messrs. Veitch have grown many grand Hyacinths this year which have not been brought before the English public in the usual manner. The success of the firm has been so signal in Hyacinth culture, and the honours they have won at home so numerous and conspicuous, that they have this year kept in reserve all the finest spikes for staging at the great International Exhibition which opens

at Ghent on the 31st inst. The plants selected for the great Continental gathering were retarded and retained in the nursery at Coombe Wood, and from thence were transmitted to Ghent on the 27th inst. Having inspected the plants previous to their departure we can testify to their great excellence; some of the spikes being as fine as any that have been seen during previous years; while those arranged at Chelsea are neither so numerous nor so good as usual.

No better opportunity can be afforded of forming an estimate of the merits of the varieties than when they are seen in quantity and cultivated in the best manner of which the bulbs are capable. Even selecting from those varieties staged at exhibitions is not an unfailing test of excellence, and for this reason—that some varieties are exceptionally good during a certain year, while the year following they are of little worth. Again, there are varieties which give about one grand spike out of six bulbs grown, the remaining five being of very moderate merit. As an example, the fine rich variety *Vurbaack*, which is so striking when well grown, is the reverse of being a certain and reliable variety. In purchasing one bulb of it there are five chances to one against its producing a good spike.

This matter is of such practical importance to purchasers that the following varieties are selected, not because they are super-excellent this year, but because they are constant—that is, good every year and reliable:—

Reds.—Charles Dickens, Emmeline, Fabiola, Gigantea, Ornement de la Nature, Cosmos, Lady Palmerston, Macaulay, Prince Albert Victor, Princess Clothilde, Princess Helena, and Von Schiller. The first six named are pale rosy pink in colour, the others darker and richer. The spikes are uniformly good, but if one is more constantly superior than the rest it is Von Schiller. A new red, *Meteor*, is the richest in colour of all.

Whites.—La Grandesse, Grandeur à Merveille, Madame Vander Hoop, Baroness Van Tuyl, Miss Nightingale, Alba Maxima, Snowball, Paix de l'Europe, La Franchise, Alba Superbissima, Elfride, and Mont Blanc. Perhaps the finest of the twelve is La Grandesse, but the three old favourites named immediately after it are exceptionally fine at Coombe.

Blues.—Grand Lilas, Princess Mary of Cambridge, Blondin, Lord Derby, as light blues; and as darker flowers Charles Dickens, King of the Blues, Baron Van Tuyl, Marie, and General Havelock; lilac or mauve, De Candolle, Haydn, and Sir Henry Havelock. The finest in this section is undoubtedly King of the Blues; it is one of the most constant Hyacinths in cultivation, but in this respect scarcely excels Charles Dickens and Baron Van Tuyl, for the trio are represented by spikes 9 inches in length and more than that in circumference. King of the Blues is, however, much the richer of the three. Two new blues highly promising are Grand Maître, tall spike, reflexed bells, and Queen of the Blues, a seedling from King of the Blues, bright blue, fine bells and symmetrical spike.

Yellows.—The three most reliable are Bird of Paradise, Duc de Malakoff, and Ida. The best blacks are the two new varieties—Masterpiece, glossy and very symmetrical; and King of the Blacks, a stately towering spike of fine black bells.

The above are single varieties, which are the most valuable both for decorative and exhibition purposes: the only few doubles of note being the following:—Koh-i-noor and Lord Wellington, reds; La Tour d'Auvergne (early) white; and Blocksberg, Garrick, Laurens Koster, and Van Speyk, blues.

The varieties above named are sufficient for any purpose, having one or several bulbs of each variety. For the information of smaller cultivators the following (a baker's dozen), are chosen for their constancy and intrinsic excellence irrespective of cost. A few of them are rather high-priced, but the majority are more plentiful and consequently cheap. *Reds.*—Von Schiller, Macaulay, Gigantea, and Fabiola. *Whites.*—La Grandesse, Grandeur à Merveille, Baroness Van Tuyl, and Madame Van der Hoop. *Blues.*—King of the Blues, Grand Lilas, Charles Dickens, and Baron Van Tuyl. *Yellow.*—Bird of Paradise.

TULIPS.—These are arranged at Chelsea, and very fine they are—dwarf in habit, regular in height, and bright in colour. The following are the more striking varieties:—Queen Victoria, pure white flaked with crimson and tinted with violet, very attractive; Bride of Haarlem, white heavily feathered with crimson; Fabiola, purplish violet and white; Golden Standard, scarlet and yellow, very gay; Joost Van Vondel, rosy crimson pencilled with white; Cottage Maid, rosy pink shaded white; Proserpine, rosy crimson, fine; Cramoisis superbe, cerise, tinted rose, distinct and beautiful; Pottebakker, white; Pottebakker,

yellow; Chrysolora, yellow; Keyzers Kroon, scarlet and yellow; and Vermilion Brilliant, splendid vermilion scarlet. The varieties named are valuable alike for exhibition and home decoration. They are all single. A few good doubles are La Candeur, white; Imperator Bubrorum, crimson scarlet; Tournesol, red and yellow; Yellow Tournesol, and Duke of York, white and dark rose.

The condition of the Hyacinths, Tulips, and Narcissuses reflects much credit on Mr. Hills, the grower, and the excellent order of the Coombe Wood Nursery generally does honour to Messrs. Veitch as proprietors and Mr. Dartnall as manager.

PRUNING PEAR TREES.

THE following remarks are suggested by the letter of "J. W."—It seems to me that there are two ways of managing Pear trees—art and nature, according to the position for which they are required. If you manage them by art you prune sharply, and at the same time root-prune occasionally, so as to preserve a just balance between the tree and its roots. This system is suitable for small gardens where space is an object, and where it is desired to grow many varieties. It is also necessary for a dressed garden where Pear trees in shapely forms are required on the sides of walks. But if space is no object, and uniformity of shape is immaterial, then by all means leave the trees to Nature, after three or four years' pruning, to form their heads. At ten years old they will be double the size of the annually pruned trees, and will bear much larger crops, though the individual fruit may not be quite so large. This last is no doubt the more profitable system.

There is one point which "J. W." has not gone into. He notices the amount of buds at the end of the shoots. But is not this a question of variety? Some Pears seem to throw out blossoms at the end of the shoots, and according to the established mode of pruning are consequently often barren (Josephine de Malines is a case in point), whereas others break out with tolerable regularity throughout the whole length of the branch. It seems to me that we have yet much to learn in this respect. Each family of Pears, if I may so call it, requires a special mode of pruning adapted to the peculiarities of its growth, whereas even the professed pruners apply the same measure to all.

Can any of your correspondents say anything about the Northern Spy (American) Apple? I have had two specimen trees for about ten years, one a cordon, the other an espalier, but neither of them has ever favoured me with a blossom.—A COUNTRY PARSON.

ANTS.

In the number of your Journal dated March 7th, under the heading "Sparmannia—Ants," it is stated in answer to the inquiry "Are the small black ants wrong in a conservatory?" "No, they are enemies of aphides."

Having for many years studied the manners and customs of ants, well designated by the inspired naturalist "a little people but exceeding wise," will you allow me to suggest that they cannot be said to be the enemies of aphides? On the contrary, these latter the ants cherish and protect, and from them derive the sweet secretion called honeydew, which serves them as wholesome nutriment; and in order to induce them to yield it for their benefit they cause their antennæ to vibrate rapidly over their abdomen, and this is the way the ants milk their cows, as the aphides are popularly called. In fact the aphid secretion forms the staple food of some species of ants, noticeably the common yellow ant, *Formica flava*, whose little hillocks are so common on our pasture lands. They even breed their cows. Last year I opened a nest in the early spring and found a chamber crowded with little black and brown shining oval bodies, which were being anxiously watched over by the workers. I kept them for some little time, and was much interested to find that they were eggs, or more correctly speaking, the nymphal forms of the aphid, since they produced ant cows of two colours.

When ants visit plants infested with aphides it is that they may secure their necessary sustenance; should they remove them it is that they may carry them to their formicarium, not for their destruction but for their preservation, in order that they may furnish nutriment from time to time for themselves and the young brood. It has been recorded that M. Duveau has seen an ant in the act of tearing and devouring an aphid, but such conduct is certainly quite exceptional. P. Huber

and A. Forel, who have faithfully chronicled their personal observations of the life history of ants, have never observed them injure an aphid. A careful observer cannot but be struck with the marked attention, assiduous care, and unflinching affection they bestow upon what to them is valuable property. I shall quite expect to learn that others can corroborate my own pleasant experience.—W. FARREN WHITE, *Vicar of Stonehouse*.

GHEENT.

BEFORE the next issue of this Journal a great gathering of horticulturists will have met in the "Flower City." Pleasant meetings and friendly greetings will have occurred between English and Continental nurserymen, and mayhap a few British gardeners may have found the opportunity of spending a few days in Belgium for the first time. We hope this may be so, for sure we are that no intelligent and observant gardener can visit the thrifty kingdom referred to, and inspect the nurseries with which Ghent abounds, without deriving many hints that would be of lasting benefit both to himself and those employing him. To the professional horticulturists of Britain the nurseries and gardens of Ghent are as familiar as those in their own country; but to the stranger—and it is to be hoped that there are always fresh visitors to every Belgian horticultural exhibition—even the briefest of brief sketches to some of the nurseries of Ghent will be acceptable.

A first glance at Ghent does not in any way denote that it is a city of flowers, for there are few, very few, flowers to be seen, even in the market. Neither are the nurseries remarkable for "flowers," always excepting Azaleas and Camellias; but for Palms, Ferns, and ornamental-foliaged plants they are probably unequalled. To attempt to sketch a route from nursery to nursery would result in failure; for the narrow twisting streets, the threading canals, the multitude of bridges, are far too numerous and too much alike to be specially referred to as landmarks for the guidance of any wandering pilgrim visiting the city for the first time. The whole town is quaint and its streets are perplexing; yet a conspicuous building in one place and a curious image in another soon become useful "guide posts," nearly as reliable and much more agreeable than the noisy, ubiquitous, persistent commissionaires who, bloused and badged, pounce on every promising stranger and make the most of him.

On arriving at Ghent, or, indeed, any other Continental town of similar size, it is important that the visitor have a clear idea of his destination, whether it is an hotel or a nursery, and go there direct and as speedily as possible. When once located the custom is such as to make him feel "at home," and all necessary information will be readily imparted, and his future becomes comparatively easy. Wherever he goes horticulturally he will find a frank masonic-like welcome await him, and will receive such attention as will almost certainly make him desire to go again. This is the happy custom of the officials of both large and small establishments. Among the places to be visited the first will probably be

VAN HOUTTE'S.—Not only is this the largest of the Ghent nurseries, but it is situated in a district where other notable nurseries abound. Van Houtte's is a gigantic establishment differing from most others because of the varied nature of its contents. The glass structures are more numerous than ornate, and the grounds are very extensive. Not a little but much of almost everything is here. It is a world-famed establishment—a wonderful nursery established by a wonderful man.

VERSCHAFFELT'S.—This nursery almost adjoins Van Houtte's. It is compact and crowded with plants of great value—Palms, Ferns, Cycads, &c., and is superintended by a master (M. Nuytens Verschaffelt), not of horticulture alone, but, what makes a visit agreeable, a master of the English language.

DE SMET'S.—This also is a compact nursery, differing from some others chiefly on account of its unique collection of curious plants—Agaves, Cacti, Dasyliirions, Yuccas, Beaucarneas, &c. It also contains Palms, Orchids, and Azaleas, besides hardy ornamental evergreens. About twenty houses are well stocked with plants, and the place is highly worthy of a visit.

DALLIÈRE'S.—Less than a mile from the trio of nurseries named is this compact, yet extensive and excellent establishment. Long rows of span-roofed houses are packed with small plants of Camellias and Azaleas. Many thousands of these plants are manufactured here, and their condition reflects much credit on the youthful manager, M. Adolphe de Meyer.

The large house is somewhat novel in its arrangement: the pathways being arranged in a carving serpentine manner that brings all the more notable plants of Palms, Cycads, &c., into close contact with the visitor. It is evidently a well-managed nursery and should not be overlooked.

PYNAERT-VAN GHEENT'S.—This is nearer the city. It is a long and narrow establishment enclosed with canals or nearly so, and has at its head one of the most genial and accomplished of Belgian horticulturists. At the outside of the houses are Bays, Yuccas, &c. In the grounds are hardy Azaleas, Magnolias, Rhododendrons, &c., and in the houses all sorts of plants which pertain to the industry of the country. The place and its owner are both highly worthy of acquaintance.

VERVAENE.—This is still nearer the city. It is a comparatively small nursery, but contains much that is choice, especially in Azaleas under glass, and Biotas and ornamental evergreens in the open air. Not only are new and choice Azaleas to be seen here, but dexterous manipulation is practised in grafting older plants; the fine umbrella-shaped heads being formed of different varieties, the colours being arranged with geometrical precision. It is an excellent type of one of the smaller of the Ghent nurseries, and its outlines may stand for about 150 others.

LINDEN'S.—This great establishment is quite in the town. A few Conifers in the enclosure command attention, but the fame of the nursery consists in its large and very numerous glass structures and their contents. The houses are richly furnished with plants large and small, beautiful and rare. Palms, Ferns, and ornamental-foliaged plants are grown by thousands, and many specimens remarkable for their novelty and beauty are arranged in the houses. It is a wonderful nursery—an immense manufactory of those plants, Palms especially, for which it is famed.

VAN GHEENT'S.—This renowned establishment is in another direction. In addition to containing large and varied collections of plants under glass, the nursery is in high repute for Conifers, Rhododendrons, Hollies, and other evergreens, Roses, and hardy ornamental trees and shrubs, all of which are grown in large numbers and of excellent quality. It is one of the most important of the Ghent nurseries, and commands the patronage of a large number of visitors.

Other nurseries are worthy of being found out and visited—such as Spae's, Connick's, Gaselle's, Boelen's, Boddaert's, Baumann's, Vuysteke's, Bruylant's, Lubber's, Aper's, Cornelissen's, Van Riet's, Saegher's, Van der Swaelmen's, De Cock's, Van der Meulen's, and some others which, though individually small, yet collectively exert great influence on the industry of horticulture, and contribute in no small degree to its reputation and prosperity in the city where it is practised with such thrift and skill.

BRISTOL AND CLIFTON HORTICULTURAL SOCIETY'S SPRING SHOW.—MARCH 20TH AND 21ST.

EXHIBITIONS of spring flowers are amongst the most enjoyable of floral gatherings. They are worthy of encouragement, not only because of the intrinsic beauty of the flowers composing them, but also because such flowers are within the means of a large number of cultivators. Local horticultural societies, by giving an impetus to the culture of such plants as Hyacinths and other Dutch bulbs, Lilies, Spiraeas, Azaleas, greenhouse Ferns, &c., do much to popularise floriculture by enlisting the sympathies of a large class of the community whose conveniences are not adapted to the culture of valuable exotics and gigantic specimen plants.

One of the first of the provincial spring shows of the year was held in the Victoria Rooms, Clifton, on the above date, and was, we are informed, an excellent one; indeed, according to the *Bristol Daily Post* "very few spring shows in the provinces could boast of a better collection of plants and flowers, and the Orchids, which have always proved a special feature of the local Society's spring fête, were conspicuous by their richness and beauty." Large collections of ornamental-foliaged plants from Messrs. Tagart, Briant, Hoskins, and Saunders formed central groups, around which were arranged the real attractions of the Show—the bulbs. Hyacinths, as is generally the case, were below the average, but Tulips and Narcissuses were excellent. The silver cup given by the Treasurer, Walter Derham, Esq., for twenty-four Hyacinths and twelve pots of Tulips, was won by Mr. Perry, gardener to J. W. Miles, Esq., who was also awarded the silver Banksian medal given by the Royal Horticultural Society for twelve Hyacinths. The bronze medal of the same Society for the best-arranged vase of flowers for table decoration was won by Mr. M. Hoskins.

A noticeable feature of the Show, and a gratifying one, was the large number of special prizes offered. These numbered more

than thirty, and were given by the gentry of the neighbourhood for collections of greenhouse plants, Asaleas, Ferns, Hyacinths, and other Dutch bulbs, Cyclamens, Primulas, Camerarias, Mignonettes, Roses and bouquets. Prizes were also awarded for dishes of Apples and Pears. Messrs. Garraway contributed collections of Rhododendrons, Hyacinths, &c., also their new white Mignonette. Messrs. Maule & Son and Mr. Gold also staged valuable collections, and Mr. Hooper, Bath, sent some fine varieties of Fancies. The Show was well managed by Mr. Webley, the Secretary, and an active Committee, and was attended by a considerable number of visitors.

ESCALLONIA MACRANTHA.

I AM not aware of the dimensions to which the *Escallonia macrantha* usually grows, but the one that is in my garden at Sorrento Terrace, Daltry, appears to me to be far larger than any that I have seen elsewhere.

This shrub was planted in the spring of 1864. It was then a very small plant. Its trunk (or rather one of them, for there are three) measures now 14 inches in circumference, whilst the branches have a spread of 16 feet in width and 11 feet in height. To these dimensions it is confined by being annually clipped with the shears, the position of the house obliging it to be thus limited; but were it not so it would be difficult to tell to what distance and height it might have now extended, for the yearling shoots are always upwards of 2 feet in length. The aspect of the garden is south-south-west, the soil very porous and dry, and the elevation 90 feet about the sea, immediately bordering upon Killinay Bay. This *Escallonia* begins flowering about the middle of March, and continues in beauty until the middle of December, during which time it produces thousands of blossoms. — JOLLIFFE TUFNELL, F.R.C.S.S., Dublin.

WORK FOR THE WEEK.

KITCHEN GARDEN.

GROUND intended to be planted with Globe Artichokes should be prepared by trenching, if not already done, and enriching with manure. They prefer a moderately light soil and moist, but freed from stagnant water. An open situation should be chosen, yet sheltered from winds. The mulching of litter about the crowns for protection should now be removed and replaced with a dressing of short manure, which is essential to the production of large heads. The finest heads are borne by young plants planted in rich soil and liberally supplied with liquid manure; indeed, moisture must abound at the roots if large and tender heads are desired. Some cultivators grow the plants upon the same ground for a number of years without change. We only keep them two years—i.e., at this time or early in April we take up the plantation that has been planted two years, divide the roots, choosing pieces with three strong offsets, or at most four, retaining a portion of the old roots, and plant rather deeply in rows 4 feet apart, allowing the same distance between the plants. These afford a moderate supply of heads in late summer, succeeding those not disturbed in the year-old bed, which produce an abundance of heads. In old plantations it is necessary to thin the suckers, leaving six or eight of the strongest to each stool. If only planted 3 feet or less apart three or four of the strongest suckers only should be retained. Rhubarb intended for forcing next winter must not be gathered from this season, but be allowed to grow unrestricted, both to secure vigour and early ripening. Asparagus for forcing must not have the heads cut this season; but Seakale, unless the crowns are very small, should be cut, in order to prevent seeding. Go over the plantation after growth has commenced, with a view to the reduction of the number of crowns, removing the smaller growths. Proceed with the planting-out of autumn-sown Cauliflowers, Lettuces, and Cabbages; complete also the planting-out of Tripoli Onions as soon as possible. Another sowing of Peas and Broad Beans to be made, earthing-up and sticking advancing crops of the former. Dusting crops whilst damp with soot or wood ashes, both being good fertilisers, is a certain method of warding-off attacks of sparrows and slugs. Make a sowing of Round Spinach every fortnight. Turnips do not last long fit for use early in the season, therefore make successional sowings frequently. Sow Cabbage for autumn use—Carter's Heartwell, Wheeler's Cocoa Nut, Hill's Incomparable, and Nonpareil Improved are capital kinds; Little Pixie is also dwarf and delicious. Also sow Broccoli—Snow's Winter, Pensance Early White, Cooling's Matchless, Veitch's Spring White, Leamington, Lauder's Goshen, Sutton's Perfection, and Model are excellent kinds, coming-in in succession. Only moderately fertile soil should be employed for seed-sowing of the Brassica tribe, the seedlings being more sturdy and better rooted than when grown in very rich soil, and are more safely transplanted.

Forcing Department.—Make another sowing of French Beans in a heated pit or frame over a gentle hotbed, and at the same time

an extensive sowing in a ground vinery. We place three rows in a span-roofed one 4 feet wide, 15 inches deep at the side, and 2 feet in the centre to the ridge, a row in the middle of Canadian Wonder, and rows 9 inches from the sides of Osborn's Forcing. These succeed those sown in heat, and come in just before those sown in the open ground.

FLOWER GARDEN.

Plant Gladioli both of the *Ramosus* and *Gandavensis* section. They should have moderately rich light deep soil and an open situation—better if sheltered from winds. We plant the corns 4 inches deep, and in damp soil surround them with a little sharp sand. Gladioluses are so highly ornamental and useful for cutting that they should be extensively planted in mixed borders, and corns are now so cheap that there is no need to be without a supply of these fine late summer flowers. Patches of half a dozen to a dozen plants in shrubby borders enliven them immensely. Seed of Polyanthus and Auriculas sow in boxes, placing them in a cold frame, and keeping the soil moist. Sow also Pansy seed, which will produce plants that will flower finely in late summer. If beds of these and of Pinks were not made in autumn plant out at once. If the plants are in pots be careful not to disturb the ball, and if from the open ground retain the roots uninjured. The frost not infrequently disturbs the soil by lifting the plants of Pansies and Pinks. Press them into their places, and give a top-dressing of rich compost all over the bed. Plant-out Carnations from pots or the open ground. The Glove varieties should be grown extensively for cutting from, indeed beds of these are less seen in flower gardens than their merits deserve. A few select Gloves are Prince Arthur, Hindoo, Ambassador, Albert, and Telegram in crimson or purple-crimson; Dazzle, Sentinel, and Géant des Batailles in scarlet; Christine, rose; Maiden's Blush, Bride, Queen of Whites, King of Yellows, with Snowflake and the old Criméon. Pinks worth growing in quantity for cutting are Anne Boleyn, Lady Blanche, Coccinea, Lord Lyons, Rubens, and Mrs. Pettifer. The three first are good for forcing. Complete the planting of Anemones and Ranunculuses. Such as were planted in autumn will be above ground, and must have the soil firmed about them. Plant Hollyhocks in deep rich soil, and mulch round each plant with short litter. A dozen and a half good varieties are James Whitton, Invincible, John Tweedie, Mrs. Downie, Mrs. Bruce, B. Todd, Mrs. F. H. Douglas, Mrs. P. Bruce, Hugh Smith, Andrew Jamieson, Archbishop, Miss Young, William Fowler, Andrew Goodfellow, Lord Stanley, Octoroon, Model, Ida, and Lady Hume Campbell. East Lothian Stocks wintered three in a pot may now be planted-out in rich soil in an open yet sheltered situation, and they will bloom finely through the summer. Divide the old roots of Dahlias, leaving a bud to each; pot each division singly, and grow on slowly until planting time. They do much better in this way than placing them in heat to obtain stock. Sow seed of *Helichrysum* in gentle heat; prick-off the seedlings in boxes or in a frame, keeping close until established, growing the plants on and having them strong by the early part of May. Their flowers are very showy, and are useful for drying. A good batch of the ornamental Grasses should be sown shortly; they are indispensable for mixing with flowers in vases, &c. Some of the most useful are *Agrostis argentea*, *nebulosa*, and *pulchella*; *Briza gracilis*, *B. maxima*, *Bromus briziformis*, *Eragrostis elegans*, *Hordeum jubatum*, *Lagurus ovatus*, *Lasiagrostis argentea*, *Piptatherum Thomasi*, and *Pennisetum setosum*. Tropæolums of the *Lobbianum* vars. are fine for trellises, rooteries, or rockwork, and should be sown now, potting-off the plants when they are showing the second leaves. They should be strong and well hardened-off by the end of May for planting. If planted a foot apart in a line and supported with sticks they make a capital floral screen.

PLEASURE GROUNDS.

As a rule we do not advocate the mixing of trees and flowers yet nevertheless we advise the planting of such herbaceous plants and Grasses which from their stateliness, boldness, grace, or elegance are in good keeping with trees and shrubs. Such fine flowering plants as *Yucca gloriosa* and *recurva*, *Anemone japonica* and var. *alba*, *Tritoma*, &c.; or of Grasses, *Gynurium argenteum*, *Erianthus Ravennae*, *Phalaris elegantissima*, *Eulalia japonica*, &c.; Bamboos, *Aralia Sieboldi*, *Gunneras*, and *Rheums nobile* and officinale. There are few pleasure grounds in which suitable places could not be found for these and plants of similar character. Damp ground will afford a home for the different varieties of herbaceous Spiræas, and low-lying places may be made quite picturesque by the addition of the herbaceous *Lobelias* and *Agapanthus*. Lawns seldom receive the attention necessary to keep in check weeds of a perennial character, such as Daisies, Dandelion, Plantain, and the coarser Grasses. Much may be done by grubbing up with a knife—a tedious operation but a certain one for Daisies, whilst Dandelion and Plantain are speedily destroyed by placing in the centre of each plant a little sulphuric acid. A blacking bottle with a wire round the neck to carry it by, and a notched stick to apply the vitriol with to the plant, are all that are wanted except care, for the acid will burn everything it comes in contact with, and must not be entrusted to a mischievous boy or careless person. Walks should be kept well swept and rolled, and the grass likewise, going over it with the machine when

necessary, as nothing injures the grass so much as allowing it to grow long and then cutting it very short, which encourages the growth of weeds and coarser grasses. The edgings of the walks must be put in order for the season.

FRUIT HOUSES.

Pines.—Those started early in the year will have bloomed or be near that state. After flowering an occasional sprinkling overhead at closing time will be highly conducive to the health of the plants and swelling of the fruit, but avoid wetting those that are in flower. Admit air carefully and early, so as to draw off the moisture from the leaves before the sun acts powerfully upon them. A very small amount of ventilation is necessary, and the temperature must not be lowered by admitting air too freely. It is well in houses having large squares of glass to employ a slight shading for a couple of hours or so during the hottest part of the day until the leaves become inured to the sun's influence. Except, however, in special cases shading is best dispensed with altogether. Air may be admitted at 80°, closing at 85°; let the temperature be 75° by day from fire heat and 70° at night, keeping the bottom heat steady at 80° to 90°. Do not water at stated times whether the plants require it or not, but when a plant becomes dry give liquid manure plentifully. Remove all the suckers as they appear except one to each plant. Continue the treatment before advised for successional plants.

Figs.—The earliest crop is swelling rapidly and will require careful attention to watering, especially in the case of trees in pots, which must be kept well supplied with liquid manure, for if they once lack water at the roots the fruit will in all probability fall when they swell for ripening. Top-dressings of rich compost are very beneficial. Apply the water a few degrees warmer than the mean temperature of the house. Do not increase the temperature until the fruit is fairly on the move, but keep the heat steady at 65° to 60° at night, 10° to 15° higher by day, closing early. Red spider will put in an appearance all the sooner if the atmosphere be at all dry; therefore syringe the trees twice a day, damping the floors, walls, &c., with liquid manure. Ventilate carefully. The weather having been for some time dull attention must be given to early air-giving upon the setting-in of bright weather with a view to prevent the young leaves scorching. Trees planted out will be making rapid progress. Attend to stopping and thinning the shoots, and watering and mulching the borders.

Strawberries in Pots.—The best means of keeping down red spider is to keep the plants well supplied with water. They should be examined twice a day, and in bright weather three times, and any wanting water must be supplied liberally, giving liquid manure two or three times a week when the fruit is swelling. There is nothing like slow but progressive growth for Strawberries. Hard forcing does not suit such as Dr. Hogg and British Queen, which are the best late varieties. Sir Joseph Paxton and President are excellent for pot culture, but they will not bear forcing like Vicomtesse Hélicart de Thury and Keens' Seedling. We grow Strawberries in all our fruit houses, and have two shelves in each house; one shelf is occupied with an early variety and the other with a late one, so that there is no break in the succession. In the later batches the trusses are coming very strong, and with them green aphid, which must be kept under by fumigation.

Orchard House.—Dull damp weather is not favourable to the setting of the fruit. Apricots especially do not set well in such weather, and air should be admitted in abundance, attending to it early in the day, and closing early in the afternoon, leaving on, however, a little air at night whenever the state of the weather permits, as a stagnant atmosphere is fatal to the setting of the fruit. In the case of heated structures the heat may be turned on early in the morning, which will admit of freer ventilation, but we do not advise a higher temperature to be maintained than 45° to 50° by artificial means. It is desirable to go over the blossom of the Apricot, Peach, and Cherry with a camel-hair brush, applying the pollen of the anthers to the stigmas of the flowers. Early closing will be necessary with a view to husband the sun heat, and prevent the temperature falling too low during the night. Syringing must be discontinued until the fruit is well set, but the borders must be watered if the trees are planted out, whilst those in pots should be kept well watered. Neglect in that respect may cause the flowers to drop without setting.

PLANT HOUSES.

Greenhouse.—*Isolepis gracilis* is a very accommodating plant, and very useful. Divide now, and pot off singly. A plant in a 5 or 6-inch pot will divide in many pieces. It is graceful for the margin of shallow basins filled with water in summer outdoors. Dependence is chiefly placed upon fine foliage and variegated plants for decorating halls, &c., in summer. They should not have larger pots than is necessary to maintain them in a healthy state, as the pots are often required to fit into vases. Young healthy well-grown plants only are available, and to keep them in small pots liquid manure should be given so as to render the pot room as small as possible. *Acacia lophantha*, *Aralia crassifolia*, *A. trifoliata*, *A. Sieboldi* variegata, *Aspidistra lurida* variegata, *Bambusa Fortunei* variegata, *Eurya latifolia* variegata, *Fartugium grande*, *Ficus elastica*, *Grevillea robusta*, *G. longifolia*, *Lomatia*

leptophylla, *L. ferruginea*, *Rhopala corcovadensis*, *R. elegans*, *Yucca filamentosa* variegata, *Y. aloifolia* variegata, and *Y. quadricolor* are all suitable, and do well in equal parts of turfy loam and sandy peat, with a free admixture of silver sand. Palms also, such as *Areca Baueri*, *A. rubra*, *Brahea filamentosa*, *Chamserops excolsa*, *Phoenix reclinata*, *Rhapis flabelliformis*, and *Seaforthia elegans* are very suitable for house decoration. Cut back *Epacris* which have done flowering. They may be cut to within an inch or two of where they were shortened to last season. A slight increase of temperature and sprinkling overhead will induce free growth, which, however, is not desirable unless the plants are required for early flowering. *Camellias* that bloomed early will now be pushing growth strongly, and should be encouraged with warmth and abundant moisture both at the roots and overhead, shading from bright sun. *Acacias*, *Cytisuses*, &c., out of bloom should be cut back, and have growth encouraged by sprinkling and keeping the plants rather close. *Azaleas* are pushing freely, and must have copious supplies of water. Any plants that it may be desirable to retard for late bloom should be placed in a cool house with a northern aspect. Heaths for summer flowering will require to be gone over, training the flowering shoots in the position required when in bloom. Use as few stakes as possible—no more than necessary to give the required shape. Those plants advancing for bloom will require more water than when the roots are less active. *Daphne indica* is a great favourite, and not often met with in such quantity as its deliciously scented flowers merit, besides it is often found in an unsatisfactory state. This mainly arises from its not receiving encouragement when making new growth. An increase of heat and moisture is necessary until the flower buds are formed, affording weak liquid manure, which materially assists the growth. Keep a strict look-out for aphides upon *Pelargoniums*, fumigating whenever one insect is seen. Those plants throwing up the trusses for flowering will be benefited by liquid manure, freer watering being now required than earlier in the season. Attend to training the shoots. Plants for late flowering stop, and if in small pots shift into larger. *Fuchsias* shift into larger pots, stopping the shoots until the plants are well furnished. Syringe in the afternoon, encouraging growth by applying liquid manure and a moist but well ventilated atmosphere, and plenty of light. *Calceolarias* feed with liquid manure, and fumigate to keep green fly under. *Rhododendrons* of the *jasmiflorum* type will be advancing for flowering, and should be well supplied with water; in fact, all plants advancing for flowering or making growth should be kept well watered. *Primulas verticillata*, *cortusoides*, *amena*, &c., are the better for having liquid manure when showing the flower trusses. *Erythras* are fine for summer flowering. They should be cut-in to within a few eyes of the base of the shoots, be turned out of the pots, disrooted, and started in gentle moist heat. It is essential that they be kept near the glass, and frequently syringed to keep down red spider. Remove the lights from *Violets* in frames, having the plants well hardened off preparatory to planting. *Spiræas*, *Lily of the Valley*, and other forced plants should after flowering be kept in a light airy house, so as to have them well hardened off by the time the weather is favourable for planting them out. *Deutzias* after flowering should be cut well back, and be placed in heat to encourage growth. *Hyacinths*, *Narcissus*, &c., after flowering place in frames, and water and ventilate freely. Though not available for growing in pots again they are suitable for borders.

TRADE CATALOGUE RECEIVED.

The Thames Bank Iron Company.—*Illustrated Catalogue of Boilers, Pipes, Fittings, &c.*

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense. Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

BOOKS (P. J. W.).—We do not know of a book more likely to suit your purpose than the "Cottage Gardener's Dictionary." It contains information on the propagation and culture of all popular plants, also on the cultivation of fruits and vegetables. (M. T. D.).—Mollison's "The New Practical Window Gardener."

PRUNING ROSES (Mrs. Cranford).—Prune the long shoots to the desired length, and the dormant eye near the bottom will swell forthwith and make much stronger growth than those would which are now so full of promise at the tops. If the shoots are at all crowded cut out the smaller when you shorten the others, so as to admit light and air to the centre of the plant, and thus add to its health and vigour.

STOPPING THE GROWTH OF PELARGONIUMS (Idem).—The tips of the leading shoots are nipped off to induce lateral or side shoots to grow, and

for no other purpose. When the blooms are set nipping would be a disfigurement and would serve no good purpose, for neither of those sections under which are included show and fancy varieties bloom more than once a year, while the zonals fairly merit the title of "perpetuals."

PRUNING ROSES (*A Lover of Rose Shows*).—I strongly recommend you not to prune Roses which were planted in March till at least a month from the time of planting, and then not to prune at all hard. The blooms will be a little late, but they will come in for any of the July shows. The Moss Roses must be pruned in April, at the time you cut the Teas; but very carefully and gently must you use the knife here. Almost as slight pruning is required for Moss Roses as for Teas and Noisettes.—WYLD SAVAGE.

CINERARIAS WITHERING (*Buckland*).—Probably they have the interior of the soil about the roots too dry.

ERRATUM.—In his letter (see page 200) on judging Roses Mr. Cant inadvertently wrote the name of Rev. Canon Hole instead of Rev. J. B. M. Camm. Mr. Cant's remarks were made in reference to the last-named rosarian.

DOUBLE PRIMROSE (*R. T.*).—It is the old Double Crimson, a rare variety on account of its delicate constitution. We think it can be obtained from Mr. Olibran, Oldfield Nurseries, Altrincham, and probably also from Mr. Ware of Tottenham and Mr. Parker of Tooting. It is increased by division.

DEUTZIA GRACILIS CULTURE (*St. Henore*).—Poverty of soil and drought are the probable causes of the weakly growth of your Deutzias. As the plants lose their blossom prune the old exhausted growth to 2 or 3 inches, water regularly, and keep them in the greenhouse or a garden frame till all danger from frost is at an end; then turn them out of the pots into an open sunny border thoroughly broken up and enriched with manure. Do not crowd them, but afford each plant ample space for the growth of root and branch. Keep down weeds, water well in dry weather, watch the progress of the growth, thinning all crowded shoots before they become long, and giving copious doses of sewage or other liquid manure if the progress of the shoots from which you will obtain flowers next season prove unsatisfactory. When growth ceases and the foliage is fallen the plants may be taken up, repotted, and placed in the greenhouse.

CULTURE OF MIGNONETTE IN POTS (*Idem*).—The plant nature of this old favourite has led to much slovenly culture. To have it in flower in mid-winter you must sow the seed from May till September; in May if you intend growing large specimens, and one, two, or three months later in proportion to the size of plants required. Little bushes may be had by sowing seed in August, draining the pots well and using a rich loam, keeping the pots altogether under glass or plunging them in coal ashes in the open air for a month or two, the latter method being generally preferable. When the pots are well filled with roots use liquid manure regularly, avoid crowding, and give the plants as much light and air as possible. You may have one plant or half a dozen in a 5-inch pot. We prefer single plants, nipping off the tips of the growth for a time to make bushy plants, and then letting the shoots come into flower.

PLANT FOR BACK VINERY WALL (*J. B.*).—No flowering plant answers so well for the back wall of a vinery as the Camellia. Fimbriata is a well-tried white sort, and Sarah Frost is a favourite pink variety. Camellias would also answer well for your shaded conservatory wall. A list of choice varieties was given in No. 885. *Hoya carnosa* answers well with us upon a shaded wall, and bears its charming flowers abundantly.

GRAPE VINE CULTURE (*A. L.*).—Syringe the Vines to encourage the buds to swell, but discontinue syringing when foliage is visible. One shoot only to be left on each spur, the tip to be nipped off at the second eye beyond the bunch, and not sooner, or you will have no Grapes. A pair of rods trained to each rafter is just one too many. At the end of the growing season when the leaves fall cut off the weaker rod, leaving only one to each Vine. If those which you retain are in a weakly unsatisfactory condition take up a young rod next season, keeping the old one to produce a little fruit, and afterwards cut it down.

ARRANGEMENT OF COLOURS IN FLOWER BEDS (*Idem*).—A central mass of one colour with an edging of another is decidedly in better taste than an alternating series of stripes.

HEAVIEST BUNCHES OF GRAPES (*W. H. N.*).—The heaviest bunches of white Grapes are Calabrian Raisin, weighing 26 lbs. 1 oz., grown by Mr. Curror, Eakbank, Dalketh, and Syrian, 25 lbs. 10 oz., grown by Mr. Dickson of Arkleton. These weights are recorded in the *Journal of Horticulture* for November 16th, 1875. The heaviest bunch of Black Grapes is Gros Guillaume, weighing 23 lbs. 2 oz., grown by Mr. Roberts, Charleville Forest, and recorded in the number for November 15th, 1877.

PRUNING YOUNG PEACH TREES (*An Old Subscriber*).—Prune them immediately, leaving the lower branches 18 inches long and upper branches about half that length.

GARLIC (*Bulls*).—We cannot enumerate its medicinal uses, you must refer to the Pharmacopœia, nor can we recommend any continental dealer in bulbs. Refer to the "Horticultural Directory."

ASPARAGUS (*W. S. F.*).—Connover's Colossal. It is a very fine variety.

BRESEE'S PROLIFIC POTATO (*F. J.*).—It is a pebble-shaped variety, some of the tubers being bluntly oval, and such have been selected and exhibited in the kidney classes. It is, however, usually exhibited as a round variety.

SCALE ON PLANTS (*R. M.*).—Your Feverfew was badly infested with thrips and scale. You did quite right in destroying it; neglect and want of cleanliness was the cause of its being so badly affected. Examine closely the whole of your other plants, sponge the foliage, branches, and stems with clean water, dip them two or three times in Fowler's insecticide, and practise sponging and syringing regularly in future.

EXTIRPATING WIREWORM (*B. H. Brookbank*).—Deep stirring of the soil in autumn and exposure to frost has been often recommended as a curative for wireworm, but we have no faith in it, having found the tough-coated little rogues as lively and abundant as ever in the following summer. We once had a piece of land badly infested, which we planted with Potatoes, and just as they were starting into growth a couple of men were set with garden trowels to take up every Potato, pick out and destroy the wireworms, and replant. The process, though tedious, was efficient, and we strongly advise you to forego your intention to sow Oats and to plant Potatoes instead. Lawes' grass manure at the rate of 5 cwt. per acre is what you require.

PAINT FOR INTERIOR OF STOVE (*D. L. Allerton*).—We know of no paint superior to that having white lead as its basis. A great advantage is

its smoothness, enabling it to be washed clean and expeditiously. Plant must not occupy the house until the smell of the paint is gone.

GLAZING WITHOUT PUTTY (*F. Bishop*).—If you buy our No. 872, published on the 18th of last December, you will find there full directions and an illustration. There is no drip caused by this mode of glazing.

LYVELLING (*A Regular Subscriber*).—We do not publish a book on the subject. We recommend you to buy London's "Self-Instruction for Young Gardeners;" it contains directions for levelling and laying-out gardens.

NAME OF FRUIT (*A. J. Lovelond*).—It is a noted Essex Apple called D'Arcy Spice or Baddow Pippin.

NAMES OF PLANTS (*Inquirer*).—1, *Cotyledon umbilicus*; 2, *Cereus flabelliformis*; 3, *Oytisus racemosa*.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

CULTURE OF CLOVERS AND GRASSES.

(Continued.)

Suckling Clover.—This has a yellow flower very like the trefoil, or hop clover as it is termed, but is altogether a distinct sort, being a perennial or permanent grass when so required. There are two varieties, a dwarf or wild sort, usually found on light sandy land and gravelly soils, and is indigenous to these soils on both pasture and arable land, and has a peculiar flower, perfectly round when in full bloom. It has in consequence been often termed by the local name of the mophead suckling. The other variety has a smaller flower, more open and yellower in colour when in full bloom, but the haulm or stem is strong and lengthy and very fine, and makes hay of the finest quality; but it is scarcely ever sown alone, and from our own experience we recommend its being sown with red clover instead of rye grass, as it does not compete with and injure the growth of red clover like rye grass; for although rye grass is often sown with the red clover for the purpose of making up for vacancies or deficiencies in the plant, yet our experience tells us that it is oftener the cause of failure of red clover. When sown together we have often seen where red clover has failed it has been only on that part of the field where rye grass seeds have accidentally fallen out of the hay given to sheep at the time of feeding-off the previous crop of roots. Suckling when sown with other clovers has all the advantages of rye grass without the disadvantages. Rye grass is often sown with clovers because it can be more quickly dried into hay than when the clovers are grown alone, and we have found the hay can be stacked three days earlier with rye grass mixed, and that when suckling is sown with either red or white clover the hay can be carted two days earlier. Suckling has another peculiarity, for when properly seeded and sown after the ring roller it is sure to take, has fewer enemies, and improves the feeding quality of any crop of which it forms a part. It is also a late grass, and comes into bloom about the same time as either red clover or white Dutch clover; and our favourite mixture is red clover or white clover 10 lbs. of seed, and of suckling 4 lbs. per acre; and when the white clover is mixed with suckling as it should be, and sown in alternate husbandry—that is, red and suckling one course, and white and suckling the next, it is almost certain to plant with regularity; in fact this is almost the only way that red clover can be depended upon to give a full crop upon light soils.

Cow Grass, or, as it is in fact, perennial red clover, is a very distinct sort from the broad or red clover, and varies so much in appearance and in its habit of growth that we think it quite a different species. Only one heavy crop in the year can be obtained, and it comes into cut from twelve to fourteen days later than the first cutting obtained from red clover; and it is well to sow suckling with this sort if on light soil, as the suckling will make a second crop. Cow grass makes a very coarse hay, and the only object of its growth on arable land has been for alternation with broad clover; still the quality of the hay is much improved when suckling is grown with it.

Yellow Clover or Trefoil, commonly termed hop clover, is the earliest to blossom of any variety, and used to be very often

mixed with red clover and rye grass; but as it comes into bloom before the red clover it is ill adapted for a mixture, and in our experience the only advantage of growing it at all is to grow it with rye grass and cut for hay very early, where the land is intended for a root crop afterwards.

Rye Grass is of several kinds, and is much used on hill farms in admixture with white or yellow clover, especially where intended for sheep-feeding only, and when required to hold over the seeds for feeding the second year the perennial rye grass is generally selected for the purpose, and affords abundance of pasturage. The ordinary sorts of rye grass, however, attract but little attention now, and not as they did formerly before the Italian rye grass came into use.

The *Italian Rye Grass* is a distinct variety compared with any of our old sorts, and has the peculiar advantage of early growth and quick succession when fed or cut; but the seed produced in this country soon loses its early habit of growth—probably the effect of soil and climate, and when a crop is desired for early uses it should always be obtained by the sowing of foreign seed from the south of France or Italy. Much of the imported seed is, however, foul with weed seeds, and ought to be carefully cleaned by the seedsmen before it is sent out for the farmers' use. This crop is now much in use upon the stock farms and in the hill countries where there are no water meadows; and by the growth of Italian grass manured with 2 cwt. of nitrate of soda per acre a crop will be obtained as early as that grown in the irrigated meadows, and far more proofy for sheep and cattle, with an excellent succession of after-grass during the summer, which will require a heavy stock to keep it down. In many cases this grass is only fed-off twice in the spring, the land being then ploughed and sown with roots of some sort. This grass when sown in either wheat or Lent corn produces fine crops in the autumn, and especially if the corn harvest happens to be early. We have on some occasions hurdled-off this crop three times between harvest and Christmas with forward stock with great advantage, and then fallow-ploughed the land in the winter to come in for other and more important and weighty crops, such as mangels, carrots, or Swedish turnips. This grass is sometimes laid down when near to farm premises for the purpose of irrigation by the drainage from the cattle yards, &c.; and in order to obtain a sufficient supply of water to carry and distribute the dung water it is well (and we are adopting the plan on several farms) to collect all the water from the spouted buildings and connect it by underground drains for that purpose.

Saintfoin is a most useful and permanent fodder plant when properly cultivated, laid down on clean land, and fed so as to prevent injury to the crowns or heads of the plants. It is usual to cultivate it on chalk soils or soils resting on chalk, and as the plants strike their roots very deep into the earth it will endure for many years. The seed of saintfoin being so much larger than clover seeds, requires to be drilled or sown after the plough in order that it may be more readily buried, for there is no seed more difficult to bury, because it is usually sown with the husk entire. It is, however, sometimes milled or freed from the husk, but it receives damage in the process unless done with great care, in which case many seeds will not vegetate when injured or crushed in the act of milling. Saintfoin is usually sown broadcast, and yellow trefoil sown with it to fill up for a hay crop the first year; but we prefer the yellow suckling to sow with the saintfoin, say 5 lbs. per acre, and not less than 4 bushels of saintfoin seed. This crop is usually only retained for about four or five years, but when it is required to be maintained for an indefinite period we prefer to drill the seed at 14 inches between the rows; the land may then be horse-hoed between the rows, and dragged and harrowed crossways. In this manner the crop may be kept quite clean, and when drilled for the purpose of being kept clean no suckling or trefoil should be sown with it. If, however, only four or five years' growth is required the suckling is first-rate, for it not only improves the hay by its fine quality, but it completely occupies the land between the saintfoin plants, and prevents the lop, and water grass, and other weeds from obtaining possession. The general management of this crop by feeding with sheep is very bad. The hungry ewes in the hill districts are often allowed in the autumn and early winter months to eat down the crowns of the plants, which destroys many of them and weakens the remainder. In this the crop becomes foul at the end of four years, and is then generally broken up; but in case it is required for permanency it is best fed by cattle, as they do not bite so close as sheep. This crop is much to be preferred to clover for horned cattle, especially for milch cows, for clover is often injurious, the animals becoming "hoven" or "blown," but this never occurs whilst feeding upon saintfoin. The hay derived from this crop, and especially when suckling is grown with it, is considered the most valuable of any, especially for farm horses, carriage or cab horses, &c., for which purpose it will always fetch the highest price. As saintfoin is usually sown in the Lent corn the barley or oats should be drilled at 12 inches between the rows. This gives a better chance for the young saintfoin plants to obtain strength. We, however, find that the plant takes best when drilled in a crop of wheat, if the wheat has been sown after a

turnip or other fallow crop; but the land should be well harrowed so as to obtain a sufficiency of loose mould to bury the seed properly.

The *Giant Saintfoin* is a distinct variety, and will grow luxuriantly upon the mixed soils of most districts; but it requires that the land should be in first-rate tilth and condition, and previously subsoiled, the subsoil plough being worked both lengthways and crossways. The steam cultivator is, however, best, and when the subsoil is effectually moved and stirred, but not turned up, the young plants succeed capitally, being enabled to drive their roots deep into the soil at the early stages of growth, and the habit of the plant being to root deeply this is the leading point in its cultivation. If, however, it is required to stand for a number of years it must be very carefully fed and cut, for the plant is not so hardy as our ordinary saintfoin, and should be treated with all the caution and care as stated to be requisite in the cultivation of the common sort. This variety is not so well adapted for hay, being coarser, yet when a mixture of suckling is grown with it the quality of the hay is very much improved.

WORK ON THE HOME FARM.

Horse Labour.—The horses will now be employed with the routine of the farm, consisting principally of tillage and seeding of the Lent corn land, also chain-harrowing the pastures and meadow land where dung or compost have been laid on during the past winter. This month, too, when the weather is favourable, the horses should be employed carting out of the woodlands any timber cut for repairs, also the underwood as made into hoops, hop poles, spar wood or faggots, for if this work is too long delayed it injures the successional growth of underwood by breaking off young shoots off the stools. The woodlands should also be attended to by open draining where the soil is too wet, otherwise the best kinds of underwood will not flourish, and alder, withay, and such like will be the only produce. The growth of timber likewise may also be greatly promoted upon many woodlands, and where draining is required the experienced eye can immediately detect the damage going on by the stunted appearance of the timber growing thereon. This is also the latest time at which timber can be set out for cutting; and as most estates have some woodlands interspersed with the arable and pasture lands, the growth of timber should be made a double question for consideration—viz., agriculturally and ornamentally, especially where timber is found in the fences or hedgerows. We know of many farms where the timber standing does not pay 1 per cent. in its annual growth. Let this be compared with the value of money, to say nothing of the damage done to adjoining fields by the shading of trees; therefore where timber is required for repairs the first trees to be cut are those which are standing in the wrong place agriculturally. The next to be cut are those which are ripe and making but little or no growth. Again, where trees in woodlands and coppices stand within 80 feet of the outside adjoining cultivated land, those also should be cut.

Hand Labour.—Men will now be employed sowing artificial manures on the wheat, also behind the drill for Lent corn upon both barley and oats where sown after a straw crop, such as wheat. The clover seeds should now be sown, and few men now-a-days can sow well enough by hand, therefore it must be done by the seed barrow, and it is best to sow the seeds at twice—that is, lengthways and crossways. This is the best way to avoid vacancies caused by careless men wheeling the seeding barrow. In the purchase of clovers and grass seeds great care should be taken to secure seeds which are perfectly clean. Now this is sometimes scarcely to be observed by the naked eye, for the weed seeds are many of them so small. We always use and recommend the use of a pocket magnifying glass as the best means of detecting these minute weed seeds, some of which resemble very much the seeds of clover and grass seeds.

ARTIFICIAL INCUBATION.

(Continued from page 234.)

M. MALEZIEU proceeds to say, "There is (in Egypt) generally an incubator for every fifteen or twenty villagers. The people bring their eggs, get an acknowledgment for them, and return at the end of twenty-two days, generally to receive two chickens for every three eggs. The chickens so hatched require the greatest care, especially during the first two or three weeks, and are commonly reared by women. They often have three or four hundred of them at once, and keep them as warm and dry as possible, putting them upon the terraces on the tops of their houses, and at night giving them shelter. The quantity of chickens annually hatched in the incubators in ancient Egypt was a hundred millions, and even to this day thirty millions are produced."

Such, according to the best authorities, was the Egyptian method. We now come to the artificial hatching in Europe. All the earlier attempts at it were evidently copies of the system just described; not to mention the Greeks and Romans of old, there are many vague allusions to it in chronicles of the middle ages. It was tried in Sicily, Naples, Malta, and Poland. A Grand Duke

of Tuscany, according to Thouvenot, "to satisfy a commendable curiosity ever characteristic of the Medici, brought from Egypt an expert in the art of hatching chickens, who produced them artificially at Florence just as well as in Egypt." France seems to have been specially the home of such experiments. Charles VII. set up a hatching establishment at Amboise in 1415, and Francis I., more than a century later, one at Montrichard. There is nothing to lead one to conclude that either of these royal experiments was practically successful. A Spanish priest, Juan Gonzales de Mendoza, had written a treatise on Egyptian and Chinese egg-hatching. This was translated into French in 1600, but from that date we have not before us any accounts of the art being practised in France till the first half of the last century. Philip Duke of Orleans, Regent during the minority of Louis XV., was a man of science, and also intimate with the celebrated and scientific M. Reaumur. The latter in his most interesting book on artificial incubation has left us an account of the Duke's purpose, defeated unfortunately by his death, of bringing an Egyptian to France to instruct people in the art. We will translate his observations on the subject. "The profit derived in Egypt from hatching-houses has long made me wish to see them established in France, and we should have had the pleasure of in Paris seeing the birth of thousands of chickens on one day and in one machine, like those in Egypt, had not a too early death taken from us that Prince, so accomplished in all the arts and so zealous for their promotion, in whose hands the sovereign power had been placed during the King's minority. We should have been spared preliminary experiments which are not generally successful, for one seldom oneself foresees all that easily might be foreseen. The late Duke of Orleans had sent to M. le Maire, then consul at Cairo, a memorandum full of questions which I had drawn up on the method of hatching chickens in Egypt without hens. M. le Maire was not content, by way of answer, with getting a memoir of the Père Sicard, containing many useful and curious directions, and which has since been published with little alteration. He did more. In a letter which I still have in my hands he offered to send to France for a moderate remuneration one of those men whose regular occupation is chicken-hatching. The aid of one of these Egyptians could not fail to be of use if one wished to set to work on as grand a scale as in Egypt, and at once to hatch forty or a hundred thousand eggs; but I have always been of opinion that the facilities for regulating the heat which the thermometer gives us obviate the absolute necessity of the help of a Bermean, for one would only begin, as it is always wise to do, with experiments on a small scale. Those which I am going to record will prove that this is no presumption on my part as to the point of success we may reach with our present knowledge."

This translation is from M. Reaumur's remarkable book published in 1749, of which we possess a copy. It is in two volumes, replete with quaint woodcut illustrations and diagrams. Its title translated is, "The art of hatching and rearing in all seasons domestic birds of all kinds, either by heat derived from dung beds, or by that of ordinary fire." With Reaumur a new era in the science of artificial incubation began. As far as we can ascertain all previous European experiments had been but imitations, more or less correct, of the Egyptian system. Reaumur also tried it, but his success with it being very partial he made many further experiments. On the whole he might be called rather successful in suggestion than in practice; he opened the way, as is often the case with great inventors, for others to profit by his failures. No book on the subject of artificial incubation has to this day, as far as we are aware, come near to his in point of completeness. It is a work, we believe, now difficult to procure, and we therefore shall not hesitate to translate passages from it, and to give as far as is compatible with our scope an abstract of its general information. In his first chapter Reaumur makes some prefatory remarks about the degree of heat necessary for the development of the germ in incubation which are worth reproduction, and which may throw some light on the stories which we hear from time to time of strange fosterparents undertaking the care of eggs and chickens. "The degree of heat necessary for hatching chickens is as nearly as possible that of the hen's skin, and what is worthy of remark, of the skin of all domestic birds of all known kinds, and probably too of all other kinds. I will not recount experiments by which I could prove this, and which I have made upon kinds of eggs that one never before thought of setting. I am relieved from that necessity by the daily experience of the poultry yard. We give the same heat the eggs of a Turkey or a Duck, we give the Turkey hens' eggs or Ducks' eggs, or the Duck hens' eggs; the young ones hatch neither sooner nor later under a different species of bird to that which laid the eggs. It is worthy of remark, too, that the degree of heat is nearly the same as that of the skin of quadrupeds and even of human beings. So Livia ought to have succeeded in her attempt, according to Pliny, to hatch a chicken in her bosom, if she had the patience to keep an egg there as long it ought to be covered by the hen."

Reaumur, after giving a description of the Egyptian incubation which we have already related, and attempting to reconcile the

discrepancies in the accounts of different travellers, goes on to mention modern attempts in France to hatch eggs in a somewhat similar manner. His idea was that the difference in the French climate and the impossibility of at once obtaining the fabulous numbers of eggs procurable in Egypt would make it undesirable, if not impossible, to start hatching establishments on so vast a scale in France; but that a little scientific study and much practical patience would make it possible to utilise heat produced for other purposes and not duly economised in such a way as to raise a considerable number of chickens with little trouble and cost. The ovens of bakers and confectioners at once occurred to him as ready-made incubators, and the cunning of those tradesmen in the regulation of their heat as a step gained in the direction of the Bermean secret. The furnaces, too, of glassmakers and ironworkers, never extinguished, might all be turned to account. He certainly was an enthusiast, but a practical one. He persuaded the superiors of two religious establishments in France to let him make all arrangements for the hatching of eggs in their baking house. These experiments were most interesting, as showing the manner in which by practical intelligence plans ready to hand may be adapted for incubation. The first of them was made in the grand establishment of St. Sulpice. We will give a brief account of it. At the end of the bakehouse Reaumur found two vaulted ovens; grand ones they must indeed have been, for during the greater part of the year 2400 lbs. of bread were daily baked in them. Above them and under the roof of the building was a chamber with one door in the same wall as the oven doors opening into the bakehouse, and one window opening to the external air. Its area was 18 feet by 11 feet, its height 6½ feet. Aided by his friend and fellow worker in science, the Abbé Menon, he at once set to work making experiments as to the temperature of this chamber. They put many thermometers about it in different places and at different altitudes from the floor. These showed that at certain places in it the degree of heat necessary for incubation was maintained. What is most worthy of remark is, that after the fires had been let out for twenty-seven or twenty-eight hours they found hardly any variation in the atmosphere. Reaumur's opinion was that "the heat taken in by walls and floors after having been for many months exposed to a continuous fire, or a fire with only regular intermission, is not subject to sudden changes." This was an observation of great importance, and one which inclines us to the opinion, which we shall give when we come to generalise from these many particular examples, that the work of artificial incubation is far easier on a large than on a small scale. Encouraged by these discoveries Reaumur proceeded to superintend the placing of some dozens of eggs in a basket in this chamber. The nuns attended to them with an assiduity little short of that of a hen, regulated the heat by means of the door and window, and were in due time rewarded by a fair hatch of chickens, though a large number of the first batch died in the shells, doubtless owing to the excessive dryness of the atmosphere. A point had certainly been gained: with a very rude apparatus, capable of almost infinite improvement in the way of ventilation, eggs had actually been hatched. Subsequently a portion of the chamber was partitioned off, and a kind of wooden table with tiers of shelves one above the other (like a whatnot) was constructed, so as to command at once slight variations of heat according to the height of each shelf from the ground. From these improvements resulted a far greater measure of success, and artificial incubation became one of the regular employments of the establishment.—Q.

(To be continued.)

VARIETIES.

IN "Nature" (vol. xvii. page 372) an account is given of the difficulty met with in Australia in getting bees to work after a few years. A correspondent calls attention to the fact that a similar difficulty occurred in California, where it has been obviated by a systematic abstraction of the honey as the bees collected it. If this were tried in Australia it might possibly meet the difficulty.

—ROOKS AND ROOK-DISASTERS.—A farmer in the parish of Retford (says a correspondent) is in the habit of treating his seed wheat with tar (one pint to three "strike" of wheat), to which he afterwards adds a very small quantity of finely sifted quicklime, which serves to prevent the grains from adhering together and clogging the drill. He finds this treatment a complete protection against the depredations of birds, so that he is spared the expense of bird "tenting," and the cost is only about 1½d. per acre. This year, however, he found that his supply of prepared seed corn fell a little short, and therefore he finished the last three rows of the field with ordinary wheat. On the very next day he found that the rooks had discovered the unprotected part of his field, and were engaged actively upon it, while they did not attempt to touch the land where the tarred wheat had been sown. —(Sussex Daily News.)

—AMERICAN MEAT.—The quantity of American beef and mutton landed at Liverpool last week was again very large. Five steamers arrived in the Mersey, having on board 5354 quarters of beef 1559 carcasses of sheep, and 585 dead pigs. There were no

WEEKLY CALENDAR.

Day of Month	Day of Week	APRIL 4—10, 1878.	Average Temperature near London.			Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h.	m.	h.	m.	h.	m.	h.	m.			
4	TH	Royal Society at 8.30 P.M.	56.5	36.1	46.3	5	30	6	35	5	33	8	57	2	3	94
5	F	Royal Institution at 8 P.M.	56.9	36.5	46.7	5	28	6	37	5	50	10	11	3	2	95
6	S		59.1	34.7	46.9	5	26	6	39	6	12	11	25	4	2	96
7	SUN	5 SUNDAY IN LENT—PASSION SUNDAY.	59.4	35.9	48.1	5	24	6	41	6	45	morn.		5	2	97
8	M	Royal Geographical Society at 8.30 P.M.	55.7	35.8	45.8	5	22	6	42	7	30	1	30	6	1	98
9	TU	Royal Medical and Chirurgical Society at 8.30 P.M.	54.5	35.5	44.0	5	19	6	44	8	30	0	29	7	1	99
10	W	Society of Arts at 8 P.M.	55.4	33.6	44.5	5	17	6	45	9	44	2	13	8	1	100

From observations taken near London during forty-three years, the average day temperature of the week is 56.8°; and its night temperature 35.5°.

ROSE NOTES ON THE PAST AND PRESENT.

NOW that we have passed the end of March I suppose we may consider that the winter is over. The winds are indeed still very cold, but the sun is so high in the heavens that we are pretty sure to have sunny days whatever frosts we may have by night. I do not know what may have been the case with my brethren in the midland counties or in the north, but here in the west I have no hesitation in saying we have had one of the mildest winters on record. We have positively had no snow till the last night or two; a few flakes fell on the 23rd and 25th of March, but they were succeeded by rain, and some few weeks ago we had snow or sleet which lasted for about half an hour, but which melted as it fell.

I never knew vegetation so forward. There is at present a Lamarque Rose in bloom on my house and a Solferatro on the church; the Rose plants also are looking uncommonly well, particularly the young trees purchased last autumn. The night frosts and cold winds now prevalent are doing positive good to the Roses, whatever they may be doing to the fruit trees. They are arresting the growth of the Roses, and so doing good service in checking the plants at a time when they can bear it much better than in May, when such frosts are very often fatal to all the tender sorts. So far, then, as the season has as yet advanced the Rose-grower has had everything in his favour.

Most of the schedules are out; the Royal Botanic Society holds its show so early as June 12th. Whatever Roses do they expect to have on that day? Their schedule, however, is so poor and meagre that it does not much matter to amateurs what day they fix. They only offer one class for amateurs, and that a by no means easy one. Twenty-four trebles tax the resources of most rosarians, and I do not think I overstate the case when I say a man who wishes to show in that class ought to have at least a thousand plants. If these lines meet the eye of any member of the Council of the Royal Botanic Society I hope I may be pardoned for urging the claims that amateur Rose-growers have on the veteran Society, and that I may express the hope that in future years it will be more liberal in this matter and offer more classes in which the amateur cultivator may exhibit the queen of flowers. I feel sure attention need only be directed to this point and some alteration will be made.

The Alexandra schedule is also out; their show is fixed for Saturday, the 22nd of June. Saturdays are most awkward days for many rosarians; but so long as the early-closing rules are in vogue on that day so long, I suppose, will everything that is good take place on a Saturday. The Alexandra and Crystal Palace Shows, the splendid series of orchestral concerts at the Crystal Palace, undoubtedly the best in England, and second to none in Europe, the Saturday Popular Concerts at the St. James's Hall—everything is on a Saturday, and a hardhearted railway company like the South-Western insists upon giving no later train than the one leaving at ten minutes to five. What are poor

country parsons to do? Miss half the show, or miss your duty, or miss the show altogether. Any day but Saturday, is our prayer. No day but Saturday, is the reply of the Directors. The Alexandra has reduced the amount given in prizes to amateurs and in other ways has curtailed the schedule: £5 is now the chief prize, while £10 is given to nurserymen. The Crystal Palace used to make the two prizes equal.

The National Rose Society has issued a most liberal schedule, but as I am not quite sure whether it is definitely and finally settled upon I will not mention it in detail. The Hereford day is fixed, and so is the Ludlow, but Birmingham as yet makes no sign. The Aquarium and Royal Horticultural schedules have not reached me, nor do I know whether the former intends to have a show. Torquay has again issued a most illiberal schedule, and I do hope the Committee will yet amend it. Fancy! for thirty-six Roses, distinct, the Society offers £2, £1, and 15s.; for twenty-four, £1 10s., 15s., and 10s.; and for twelve trebles, £3-cup, £1 10s., and 15s. These are for amateurs. The nurserymen fare equally badly: for forty-eight singles they are to have only £2 10s., £1 10s., and £1; and for forty-eight trebles, £5, £3, and £2. If this Society were to reduce the number of classes exactly by one-half they could offer liberal prizes and attract Rose-growers from all parts. As it is their money is as good as thrown away, if a repetition of last year's show takes place, so far as the open and nurserymen's classes are concerned. Secretaries of societies cannot make a greater mistake than to offer so many classes and with so little money as prizes. The old schedule of the Crystal Palace might well be taken as a guide:—For nurserymen: 72, 48 trebles, 24 trebles and 24 singles, and 12 Teas and Noisettes. For amateurs: 48, 36, 24, and 12 distinct, the class for twelve being a close class. The only mistake about their schedule was that there was no class for Teas in which amateurs could compete.

And now, having stated the various schedules, may I offer a word of advice to my brother rosarians? I remember once taking up Roses to South Kensington. I had staged in every class, but a thunderstorm came on while I was cutting and my blooms were much knocked about. I showed them to Mr. George Paul. He advised me in his usual kind way to take out the best from each box and make one good twenty-four, or even twelve. I did not do so, and what was the result? I was not placed in a single class. "You amateurs try to do too much," was his remark on that occasion, and I repeat it in this letter—we try often to do too much. There are very few amateurs, indeed they can be counted on the fingers of one hand, who can show forty-eight, thirty-six, twenty-four, and eighteen trebles well. Mr. Baker can and Canon Hole, Mr. Pochin, Mr. Jowett, and Mr. Arkwright; but who else? To show forty-eight distinct varieties you require a stock of at least sixty varieties, and fifty to a hundred plants of each; so that you should have at least four thousand plants. But if we can but curb our ambition and confine ourselves to the smaller classes we may do very fairly. Last year at the National I showed in all the big classes and was fourth in each, but at the Alexandra I confined my attention to

twenty-four trebles, and there was first. I only mention this to strengthen my point. Let us in the autumn decide what classes we mean to show in next year, then give orders to the nurseryman in accordance with our choice of class.

A man who wishes to show twenty-four trebles had far better buy fifty plants of thirty sorts than thirty plants of fifty sorts. The same rule holds good all the way down the schedule. Where I have fifty plants of a leading sort Mr. Baker or Mr. Jowett has most likely five hundred. These are all growing in lines together, and it is as easy for Hercules to cut good blooms for all the classes in the schedule as it is for a pigmy like myself to cut for one. Do you know what Mr. Baker did on one great occasion? He not only cut blooms for all the classes, but actually cut a spare for each bloom; so that he took up to the show something like 450 blooms! But how many of us can do this?

Many a poor forty-eight has been staged which would have made a splendid twenty-four. It is true, of course, that the prizes for the large classes are much more valuable, and that the fourth prize for forty-eight is often as good as the first for twenty-four; and it is not less true that there is much less competition in the higher classes, so that the chances are much greater that you get the fourth prize for forty-eight than that you get the first for twenty-four. Yet everyone who loves the Rose for the Rose's sake, and that exhibits it simply from a desire to tilt a lance at the tournament of the queen of flowers, will not be guided by such miserable and selfish principles as making prize-money.

After you have decided upon your class, the next aim is to try and get an even stand; I mean by this Roses of much the same size and quality throughout, and this is all the easier when you confine yourself to the smaller classes.

I remember once at South Kensington Mr. Laxton showing thirty-six Roses in a box made for twenty-four. They were all small even blooms, of good form and fresh colour. He, cunning man, knew their weakness and also their strength, and so to conceal their want of size, and also to show the even nature of the exhibit, he put them close together; so the judges when they came to the stand (how well one can imagine the Rose king who reigns at Cheshunt saying, "A nice even lot, perhaps a little undersized, but fresh and of good form, much superior to that lot, which reminds me of a lot of Cochinchina eggs mixed up with bantams") gave him the prize.

The setting-up of a stand of Roses also is a great matter. Anyone who has seen one of the great nurserymen set up a stand will be amazed at the difference an expert exhibitor makes in a few minutes to a prize stand. The box when opened displays a grand lot of blooms, all of them level with the moss and displaying great humility. The master then sets to work. I must not again say what preliminary touches he gives to his own apparel lest I should again offend some sensitive person. He begins to set up each bloom about 2 inches from the moss, and when he has done the effect is marvellous. Each bloom seems to be saying, "Look at me; am I not a beauty? Don't attend to my sister, she's a conceited Tea. Behold my charms. I am not the least bit of a prude. You may look at my charms." Every now and then you perhaps see a rather small bloom, but if so she is what we may call a perky one—i.e., has a character of her own. There is something about the curl of her hair or her blushing cheeks that will win your love, even though she be somewhat of a dwarf as to size. And so we have another rule—Don't put in a comparatively small bloom unless there is some other distinguishing excellence which will redeem her position among a lot of giants. It is no good putting a poor weak bloom in the bottom row in the hope of its being undiscovered. A judge has the eyes of Argus.

I have written these few notes as hints to beginners, not in any way venturing to offer advice to old stagers; but in your columns letters have appeared from neophytes and others, and to them perhaps a few hints may be acceptable. What I have said may not be worth much, but it is at least the result of much experience in Rose-showing. If it is not thought anything of by the cognoscenti let them dismiss this article with the simple reflection that it is only written by a—WYLD SAVAGE.

FRUIT PROSPECTS.

In the county of Durham we are having our share of the present very rough weather. On Saturday morning we had 2 inches of snow, and my thermometer lying exposed on the woodwork of a cold frame registered 10° of frost, Sunday

morning 8°, but I rather suspect my instrument is 2° too low. Gooseberries are just peeping through the foliage used for a protection against such weather, my bushes being all grown with a nice round top. I do not expect they are much worse. As a rule, such pruning secures a half crop, and for this reason I never grow them thinly trained-out as though I wanted the fruit for exhibition. What Pear blossom there is, is ready for expanding; but I have not the slightest faith in a remunerative crop of either Apples or Pears, as I do not think the fruit buds were sufficiently perfected last season. My Peaches in tubs—of which I enclose a leaf of Lord Palmerston, Princess of Wales, and Royal George—have set their fruit fairly well, Early Alfred the best, and Noblesse the worst of the twelve varieties. Last year in pots I had much pleasure in them, and I have great expectations of the present. Apricots, Nectarines, and Plums in a cold house are now in full bloom, and are healthy and pretty. This way of growing fruit is really an interesting occupation. My Vines are breaking with great vigour, and two canes of Frontignans and all the Alicantes are showing promising bunches. I used fire all the twelve months moderately, and the canes were well ripened, but I have a dread that late houses without fire heat will be in a worse position than they were last sunless summer. It would be interesting to hear what others have to say upon this subject. —JOSEPH WITHERSPOON, *Red Rose Nurseries, Chester-le-Street.*

[The Peach-tree leaves are clean, healthy, and fine.—EDS.]

VEGETABLE CULTURE.

CHAP. XIII.—CELERY.

CELERY is a native of Britain, and is generally found growing wild in marshy places. Although it cannot be regarded as being of such great importance as an article of food as many vegetables, it is nevertheless cultivated in almost every garden, and in many instances great attention is paid to it. When a few plants are wanted for soups earlier than the main crop, a little seed is sown in heat about the end of January. Celery seed germinates quickly in heat, and the plants grow quickly afterwards. The seed should therefore be sown thinly, and the plants must have plenty of light. As soon as they have formed four or five leaves they should be transplanted either into boxes or a frame on a slight hotbed, the plants having room to develop. The soil should consist of about half leaf soil or decayed manure, and the other half loam. Before planting, this mixture should be made very firm, as the plants thrive better at first and lift better afterwards when that is done.

In raising young Celery plants there are two very important matters which must be attended to; these are never to allow the plants to become dry at the root, and to keep a very sharp look-out for snails. I do not know a vegetable that these pests devour quicker than young Celery plants, and when the plants are very small a single snail will eat dozens of them in one night. The best way to prevent this occurring is to destroy every snail on its first appearance. If it is not convenient to do this dust the plants over with powdered lime, and repeat this if necessary. Plants raised in heat will be considerably advanced in growth by the beginning of April, and during that month they should be gradually exposed to the air until they are quite hardened-off and ready for planting-out early in May.

Seed for the main crop of Celery should be sown about the middle of March. We have tried various ways of raising the plants at this time, and we make it a system now of sowing the seed in boxes, which are placed either in a slightly heated house or close frame. A frame is the best place in which to set the boxes as soon as the plants are formed. Where no protection can be given the seed should not be sown until about the middle of April; it may be then sown in a sheltered place in rich soil out of doors. The plants must not be allowed to become crowded before they are transplanted. When a frame can be spared transfer them to it. The frame should stand on a hard bottom, and rich soil should be placed in it to the depth of 6 inches, and be made firm before dibbling-in the plants 3 inches apart each way. Water them immediately afterwards, and shade from bright sunshine if necessary for a few days. During the time they are growing in the frames too much attention cannot be paid to supplying them with water. The plants will be ready for planting-out finally when they are about 6 inches high. Previous to planting they must

be fully exposed to all kinds of weather night and day. Short strong hardy plants receive no check when planted out.

The following remarks on general culture apply to plants raised early or late. No great attention need be paid in selecting soil in which to grow Celery, as its successful culture depends more on what is put in the soil than the soil itself. We have grown good Celery in both very light and very heavy soil. Of the two we prefer the latter. Heavy soil is best in a dry summer, but light soil preserves the Celery best in a damp winter. The trenches in which to grow it are of very different widths. Some make them only sufficiently wide to hold one row; others, especially market gardeners, often grow eight, ten, and twelve rows in a trench. The single-row system is very convenient, but not much more so than when two, three, or four rows are planted in the same trench. We always plant from two to four rows, and find it suit admirably. Ten inches is quite deep enough in light, and 6 inches in heavy soil for the trenches, and a width of 6 inches should be allowed for each row. The trenches should be prepared a few days before they are required for planting, and the top of the ridges between them should be made quite level. As soon as these are finished rows of Lettuces, Spinach, or any quick-growing crop may be sown, which can be used before the Celery is ready for earthing-up. Without a good quantity of manure good crisp Celery cannot be grown. We generally place manure (cow dung) in the trenches to about the depth of 6 inches, and dig it in. When the trenches are only about 6 inches deep the manure nearly fills them, but it settles down; when the soil is light and dry it should be trodden firmly. When the soil in the trench is clayey the young plants do not grow kindly in it at first, and it is of great assistance to them when sufficient fine soil can be placed round their roots to give them a quick start. In planting all the roots possible must be secured, and they must be placed in the soil carefully, not cramming them down roughly.

It is an advantage to plant in dull showery weather, but this cannot always be had; and when the weather is dry and bright the plants must be thoroughly watered immediately after planting. Should the weather continue dry it will be necessary to water them twice a week until they have begun to grow; but when they get a thorough hold of the manure drought has not so much influence on them. In extremely dry weather, however, care must be taken that the plants, no matter what size they may be, do not suffer from dryness at the root, as it is from that cause that Celery "bolts," or runs to seed prematurely. I may remark here that with 6 inches between the plants across the trenches, 12 inches should be given them the other way. After planting they must be kept free from weeds by having the Dutch hoe run between the rows until the plants meet.

Earthing-up should not begin until the plants are at least 15 inches high; the short outside leaves and suckers must be broken-off before the soil is applied. It must be broken down fine, and not a particle must be allowed to go between the leaves or in the centre of the plants. We generally apply the earth three times before the heads are completely blanched. Worms do not injure the heads if a little soot is sprinkled between the plants each time before earthing. Earthing-up should only be done when the leaves and soil are dry. Where it is not convenient to employ two persons in earthing-up, each plant may be tied-up with a piece of matting to prevent the soil from going in the centre; but the tying must be removed as soon as the earthing is finished.

When the autumn and winter are severe it is generally necessary to protect Celery, and one of the best materials which can be used for this purpose is dry fern. Straw is nearly as good, and in very cold localities it is often necessary to employ mats, shifting them off and on as required. Celery is most in demand from October to February, but we have plenty of it now; it has been lifted from the trenches for some weeks and laid in by the heels amongst ashes, which is a good way of preserving it when it is necessary to clear it from the ground to get other crops on.

The Celery fly is very troublesome during some seasons and in some localities. It feeds on the leaves, and the parts attacked blister. If not checked this ultimately spoils the plants and crop. As in the case of other insects, the best way of staying their progress is to kill the grubs before they become numerous or have time to do harm, and this can easily be done by pinching every one between the finger and thumb as soon as they make their appearance. Soot dusted on the leaves will also keep them in check. We grow and recommend Major

Clarke's Red, Cole's Superb Red, and Incomparable White.—
A KITCHEN GARDENER.

GREAT INTERNATIONAL HORTICULTURAL EXHIBITION AT GHENT.

FOR a period of fifty years exhibitions which have attracted the presence and secured the co-operation of the leading horticulturists of Europe have been held every five years in Ghent. The present, being the tenth quinquennial, naturally commanded more than ordinary attention, and great efforts were made to render it equal or rather superior to the memorable gatherings of the past.

Apart from the interest attaching to the extensive and valuable collections of plants incident to such an occasion, the opportunity afforded for the assembling of horticulturists of various nationalities, and under such congenial auspices, renders these great exhibitions real red-letter days in the horticultural world. They are events, too, made additionally enjoyable in consequence of the unfailing courtesy of our Belgian friends, whose frankness of welcome and open-handed hospitality are proverbial.

The risks attendant on sending valuable plants across the Channel thus early in the season were this year unusually great. The weather on the day previous to dispatching the collections—the packing day, (Tuesday, the 26th ult.)—was one of the most bitterly cold of the entire winter. With 10° of frost in the morning, a drifting snow-and-ice wind blowing a gale all day, nothing but the utmost boldness and extraordinary enterprise could have impelled the English exhibitors to have proceeded with their work. They, however, ventured and sustained the credit of their country in a manner as gratifying as it was successful. Mr. BuW won all the chief prizes in the classes for new plants. Mr. Wills triumphed over all comers with his unique collections of *Dracenas*, winning also with *Nepenthes* and *Yucca filamentosa variegata*; and the old firm of Rollisson proved itself vigorous by securing the chief prizes in the classes for Orchids and Cape plants. Messrs. Veitch and Williams did not compete in the classes, but their miscellaneous collections won high honours. Such results are ample rewards for the risks incurred by the transit of plants across a stormy sea and their long detention in the Exhibition—March 31st to April 7th. The visitors, too, will not soon forget the passage across the Channel on Friday the 29th ult. A more unpropitious morning for starting for a flower show could scarcely be imagined. Heavy snow left the London streets at seven o'clock in a state of half-congealed slush. Flowers were about the very last things that ought to be out in it, and fears were expressed that a continuance of such weather would prove fatal to the success of the International Exhibition. At Dover a gale was blowing, the train could not be run down to the pier, umbrellas were worse than useless, and big waves now and again washed like a sluice over the Admiralty pier. There was so much sea on that the Ostend boat could not leave at all, and we resolved to make the passage to Calais. Ere five minutes had elapsed from the departure from the pier most of the passengers were engaged on their own private affairs, and the deck was felt to be a more pleasant locality than the cabin. So protected with overcoat and rugs we faced the weather, lest sympathising too keenly with the misfortunes of our friends we too might fall victims, a fate from which we were fortunately preserved. Entering Calais two hours and a quarter afterwards we just grazed the bar and escaped four hours' additional tossing by only a few minutes, and after a tedious railway journey reached Ghent at eight o'clock. At the Hôtel Royal we met a host of English friends and all besides that we required.

Rain was the order of the day on Saturday, and as a consequence of the bad weather arrangements for the Show were scarcely complete at the stipulated hour. At about eleven o'clock we were summoned into the Committee room, and the President addressed the members of the Jury in a short address.

"Sixty years ago," observed the Comte de Kerchove de Denterghem, "there met in a small tavern a short distance from the present place a few gardeners and amateur florists. Then and there it was that the idea of the first floral exhibition ever held in Ghent took its rise. Though modest in its pretensions it yet had unexpected eclat. It was composed of fifty plants, and a smoky room sheltered them; but even then the love that the Ghent population bore to flowers was so great that the Exhibition was admired by a crowd of visitors. The Society, so modest in its origin, lived and increased rapidly in the number of its members, and strengthened year by year the success of its exhibitions. To-day is the 141st time that the Society invites to it the lovers of plants, and vast though our usual places of exhibition have been, they are too confined to contain all the wonders which the plant establishments of exhibitors have sent us. We find in this eagerness that on all sides we receive in reply to our invitations a flattering recompense for the efforts made by the Society for the advancement of horticulture."

The President, who was loudly cheered, then dismissed the Juries to their duties, briefly remarking on the nature of the special prizes provided, and thanking especially the English Committee of the Van Houtte memorial for honouring, in the form of prizes offered, the memory of the valiant horticulturist. He also thanked Mr. William Bull for the handsome silver cups to be competed for at the present Exhibition.

At the breakfast which followed the judging the Comte de Kerchove de Denterghem spoke a few words of welcome and thanks for the exertions of the Jury.

On Sunday happily we had a sunny day, and the Exhibition was soon a very gay scene. Brilliant uniforms—military, diplomatic—and fashionably dressed ladies filled the rooms and houses. Guards of honour from two regiments formed along the side of the road on each side of the entrance, and at two o'clock the King and Queen arrived attended by the Count and Countess of Flanders and other members of the Royal family and a large suite in full gala uniform. The Royal party were conducted round the Exhibition by the President and M. Verschaffelt, and both the King and Queen spoke to many of the exhibitors and other distinguished botanists and horticulturists present. He expressed his great pleasure to see so many from England, and after a stay of two hours and a half the Royal party left; the rain had recommenced, and it was blowing a cold easterly wind. As it happened almost the whole of the English section found themselves together near the entrance as their Majesties departed, and a thorough English cheer seemed to astonish the natives, and was duly acknowledged by the King.

It is said that the town of Ghent is not in the Royal favour just now, as disloyal manifestations had on a former occasion been made here; but whether for this reason or not we cannot say, but the banquet was not honoured with the presence of royalty. The President was supported on his left by the Duc Decazes and on his right by the Minister of the Interior; the Procureur-General and various Government functionaries occupied seats at the upper table, and at half-past eight we were ushered into the adjoining Opera House to hear Verdi's *Ballo in Maschera*.

As before observed Messrs. Veitch and Williams only sent honorary collections, but these, as might be expected, are of sufficient merit to arrest general admiration. Both exhibitors were awarded gold medals of the first class for fine groups of new and choice plants. Messrs. Veitch also receive a gold medal for what is no doubt the grandest collection of one hundred Hyacinths ever seen in Belgium. These noble spikes commanded general admiration. The same firm receive a silver-gilt medal for a group of Cyclamens, and Mr. Williams has the same award for a similar collection. Both the groups are excellent.

Messrs. Veitch's miscellaneous collection contained the following plants:—*Acalypha Macafeana*; *Anthurium Veitchii*, a remarkably fine specimen, which is greatly admired; *A. Warocqueanum*, fine specimen; *Aralia Kerchoveana*, new; *Erythrina Baptistii*, new and fine; *Hæmanthus cinnabarinus*; *Croton Earl of Derby*, *C. maculatus* Katonii, *C. fasciatus*; *Crinum Verschaffeltianum*, new, and commands general approbation; *Stenospermum Walisii*; *Lomaria discolor bipinnatifida*; *Euryclis australasica*; *Adiantum palmatum*, *A. speciosum*, *A. Lüdemannianum*; *Gymnogramma Muelleri*; *Tillandsia Zahnii* in flower and a source of considerable attraction; *Araucaria Rulei*; *Brahea filamentosa*, a fine specimen; *Cypripedium selligerum*, and the new and chastely beautiful *Magnolia Halleana* syn. *stellata*, this plant proving a general favourite with the visitors. The group is not large, but is very valuable, the Orchids having been left at home owing to their fragile nature and the extremely inclement weather.

Mr. Williams arranged a larger and very fine group, which is brightened by Orchids which the sturdy horticulturist ventured to bring. These consisted of *Cattleya intermedia*; *Cypripedium Dominicanum*, Lowii, niveum, villosum, and Warnerii; *Dendrobium crassinode*, *Wardianum*, nobile, and *chrysotoxum*; *Lycaste Skinnerii*; *Masdevallia chimera*, ignea, and ignea superba; *Odonoglossum Alexandræ*, cirrhosum, gloriosum, and *Pescatorei*; *Oncidium sarcodes*, *Phalenopsis Schilleriana*, and *Restrepia elegans*. The ornamental-foliated plants comprise *Aralia Veitchii*; *Anthurium floribundum*, *Patinii*, and *Scherzerianum*; *Anæctochilus petala*, *Calamus ciliaris*, *Cyanophyllum magnificum*, *Cocos Weddelliana*, *Cycas intermedia*, *Chamaedorea glaucifolia*, *Cupania filicifolia*, *Cordyline indivisa*; *Crotoms Burtonii*, *Bismarckii*, *Disraeli*, *camptophyllum*, *Jamesii*, *Mooreanus*, *Mortii*, *mutabilis*, *Queen Victoria*, *Prince of Wales*, and *volutum*—a fine assortment; *Dracæna Bausei*, *Berkleyi*, *Elizabethæ*, *Frederickii*, *Goldieana*, *Mrs. Bause*, *Imperator*, *Renardii*, *Salmonea*, and *Scottia*—a rich collection; *Dæmonorops palembanicus*, *D. Lewisianus*, *Dieffenbachia marmorata*, *Encephalartos cycadefolia*, *Geonoma gracilis*, *Gleichenia Mendelii* and *G. rupestris*, *Kentia australis*, *Macrozamia Dennisonii*, *Panax laciniatus*, *Sarracenia Drummondii* and *S. purpurea major*, *Thrinax elegantissima*, *Yucca filamentosa variegata*, *Habrothamnus elegans*, *argenteus*, and *Tillandsia Lindenii*. Of *Nepenthes* we observed *Chelsonii*, *Courtii*, *intermedia*, *Rafflesiana*, and *Sedeni*; and Ferns were represented by *Lomaria discolor bipinnatifida*, *Microlepia hirta cristata*, *Adiantum lunulatum* and *palmatum*, and the distinct Fern, with its distinct name, *Anemi-*

dictyon phillides tessellata. This is a noble group of plants quite worthy of England and Holloway.

Extra exhibits are also contributed by Belgian exhibitors, but only one gold medal is awarded—namely, to Mr. D. Vervaeke, sen., for an excellent group of *Azalea indica*. Mr. Van Houtte has a silver-gilt medal for a fine collection of *Bertolonias*; and silver medals are awarded to M. Baumann for *Araucarias*; M.M. Vanderzwalm, Van Hoecke Peeters, Spilthoorn, Leopold Haec for divers exhibits; and to M. Schwartz of Lyons for *Roses*.

In referring to the classes it will be appropriate to first summarise the signal successes achieved by the trio of English competitors, Messrs. Bull, Wills, and Rollison. Mr. Bull exhibits in ten classes, and secures seven first, one second, and two third prizes, represented by five gold, four silver-gilt, and one silver medal. Mr. Wills competes in five classes, and secures two gold and three silver-gilt medals; and Messrs. Rollison, who exhibit in four classes, have the same number of first prizes—three gold and one silver-gilt medal. Thus, including the awards to Messrs. Veitch and Williams, we find that while the English horticulturists only compete in nineteen classes they secure twenty-four medals, thirteen of these being of gold, ten of silver-gilt, and one of silver, a triumph such as we seldom have the pleasure of recording—a result quite sufficient to make a nation proud of its representatives.

Our readers will next desire to know what plants those famous exhibitors have proved so successful. We will first enumerate Mr. Bull's remarkable contingent. In Class 1, twelve plants in or out of flower recently introduced into Europe by the exhibitor, the gold medal of the first class was won with *Encephalartos Hildebrandii*, *Croton Rex*, *Dracæna Goldieana*, *Bowenia spectabilis serrulata*, *Croton picturatus*, *Dieffenbachia triumphans*, *Lomaria discolor bipinnatifida*, *Carludovica Drudei*, *Cataglyphis Hopei*, *Cibotium Menziesii*, *Dieffenbachia splendens*, and *Aralia splendissima*. In the corresponding class for six plants the following won the gold medal—*Sadleria cyathoides*, *Dracæna Goldieana*, *Bowenia spectabilis serrulata*, *Croton Disraeli*, *Dieffenbachia Leopoldii*, and *Anthurium Veitchii*. In Class 3, for twelve plants in or out of flower introduced into Europe by the exhibitor and not yet in commerce, the gold medal of the first class was awarded for *Panax plumatum*, *Aralia venusta*, *Dieffenbachia Shuttleworthii*, *D. Regina*, *D. Leopoldii*, *Dipteris Horsfieldii*, *Alcasia Johnstoni*, *Croton princeps*, *Pandanus princeps*, *Alsophila undulata*, *Croton cornigerus*, *Doodia aspera multifida*; and in the corresponding class for six plants the following constitute the gold medal collection—*Aralia concinna*, *Davallia fijiensis*, *Dieffenbachia Leopoldii*, *Dendropanax argenteus*, *Anthurium insigne*, and *Zamia princeps*. The eminent Belgian horticulturist M. Linden is second to Mr. Bull in the above important plant classes, and M. Jacob Makoy et Cie., Leige, third in Class 3. The contest between the first-named two exhibitors was unusually keen and close.

In Class 7, for one plant in flower recently introduced into Europe by the exhibitor, Mr. Bull wins with *Hæmanthus Mannii*. M. Linden is again second, and M. Makoy et Cie. third. In the corresponding class for a plant not in flower the prizes go to M. Linden, M. Auguste Van Geert, and Mr. Bull respectively. In Class 9, for plants in flower obtained from seed in Europe and not previously exhibited before the Society, Mr. Bull wins with *Dendrobium Ainsworthii*. In the class for eight Palms of recent introduction Mr. Bull won the first place with *Thrinax barbadensis*, *Plectocoma himalayana*, *Kentia Wendlandii*, *Cyphokentia macrocarpa*, *Drymophleus paradoxus*, *Geonoma Bluntii*, *Martinezia Roezlii*, and *Desmoncus granatensis*; and in the class for three Ferns won him the medal—*Lastrea aristata variegata*, *Cyathea Imryana*, and *Pteris splendida*.

Amongst Mr. Wills's wonderful collection of *Dracænas*, which far eclipse all others in the Exhibition, and secured the gold medal *à l'unanimité*, we noticed the following as a few which specially commanded the attention of the visitors:—*Caustonii* (new), medium size, bronze flaked rosy crimson, some leaves being wholly crimson violet, a seedling from *Magnifica*, very rich; *Recurva*, a remarkable and distinct variety, a stately column of dark recurved foliage; *Anerleyensis*, grand in character and colour; *Mrs. Freahe*, medium, foliage narrow, gracefully arched, fine habit, dark green, margined broadly with cream, faintly tinted, and having rosy pink stems, fine substance; *Gladstonei*, grand foliage 6 inches in diameter, deep bronze, nearly black-coloured crimson; *Leopoldi*, a handsome and stately variety, fine in foliage, and rich in colour; *Alba marginata*, stately, of great substance, valuable for decoration, colour creamy white and green; *Gigantea*, large, foliage 8 inches in diameter, bronze green, heavily edged with cream tinted rose; *Voluta*, the same colour as the preceding, with recurved foliage; *Majestica*, very free and stately, foliage narrow and arched, green suffused with orange red; *Salmonea*, colour of *Majestica*, but plant of more upright habit; *Tillingii*, handsome in habit, foliage 8 inches in diameter, and very broad and recurved, but not so highly coloured as some others; *Wilsonii* (new), a seedling from *Mooreana*, upright growth, very long leaves, bronze green, flaked and edged with crimson and tinted with violet; *Thomsoni*, good habit, broad foliage, very richly coloured; *Willis*, sturdy and handsome, foliage recurved and extremely rich, one of the finest; *Mrs. Wills*, dwarf and constant, white, very distinct; and *Eliza-*

bethæ, dwarf and very highly coloured. The above are only a portion of the grand collection which wins the gold medal of 150 francs offered by the members of the Council of Administration—one of the chief prizes of the Exhibition. M. Van Houtte had the second prize in this class with a remarkably fine collection. In the class for six *Dracenas* not in commerce, Mr. Wills is the only prizetaker with the following fine varieties:—Mr. Freake, *Majestica*, *Alba marginata*, *Willisi*, *Leopoldi*, and *Anerleyensis*; and in that for three plants remarkable for their culture and their beauty he is also in the premier place with splendid examples of *Gladstonei*, Mr. Freake, and *Anerleyensis*; M. Dallièrre having the second prize. It is in these two classes that Mr. Wills takes the silver-gilt medals. The other gold medal he wins in the class for six *Nepenthes*, the prize being offered by the Comtesse de Gomer. The collection was composed of *N. Rafflesiana*, twelve pitchers; *N. Hookeri*, with eighteen; *N. Sodei*, with eighteen; *N. intermedia*, with seven; *N. Courtii*, with four, very fine; *N. Dominiana*, with seven; *N. Chelsoni*, with fifteen; *N. ampullacea vittata major*, with five pitchers. Although this is not the period when *Nepenthes* are in their best condition, the plants exhibited were extremely fresh and healthy. Some of the specimens were small, but others were large and had handsome pitchers. Mr. Wills's remaining exhibit, for which the medal was awarded *par acclamation*, the pair of *Yucca filamentosa variegata*, have foliage about 2 feet long, clearly and finely striped; plants about 2 feet through. They are a pair of handsome specimens, and well merit the silver-gilt medal that was awarded for them.

We pass now to note the successes attained by the Belgian exhibitors. Although, as we have observed, M. Linden exhibits remarkably well in the classes for new plants, the familiar name of M. Louis Van Houtte must be credited with the greatest number of prizes of any competitor. The famed nursery at Gentbrugge appears as formidable as ever, for its ample stores figure in fifty different sections, and in nearly all successfully, for the result is twenty-seven first prizes, eight second, and five third; in all forty.

Amongst the more important of the prizes are the gold medal for twenty new plants in or out of flower (the second and third honours in this class (3) going to Mr. J. C. Moens of Lede and M. Aug. Van Geert respectively); the gold medal for twenty-five stove and greenhouse plants with variegated foliage; the gold medal for fifteen *Pandanuses*; the first-class gold medal for seventy-five *Amaryllises* in flower (the second gold medal in this class (154) going to M. J. Boelens of Ledeberg, and the silver-gilt medal to M. A. Vandenbossche of Leeuwerghem respectively); the gold medal for a hundred *Hyacinths* (the second prize going to M. E. Barnaart & Co. of Haarlem). Greater still than the above prizes was the object of art value 250 francs, offered for six stove and greenhouse plants remarkable for their beauty and their culture. This cannot fail being a very highly cherished prize, for it was offered by the English Committee formed for honouring the memory of the late M. Louis Van Houtte. We congratulate the present owner of the great nursery and the inheritor of an honourable name on the acquisition of this prize. M. Van Houtte also secures a prize of still greater intrinsic value, the object of art value 500 francs, offered by the Comte de Kerchove de Denterghem for seventy-five plants in or out of flower (the remaining prizes in this class (171), the great gold medal, going to M. J. B. de Saegher of Ghent, and the gold medal to M. Vandermeersch-Mertens of Antwerp); and also the liberal prize, an object of art value 300 francs, offered by the Comtesse de Kerchove de Denterghem for 150 *Hyacinths*, thus defeating the Dutch exhibitors, MM. Schertzer & Son of Haarlem, who are second, winning the large gold medal, and A. E. Barnaart & Co., who secure the gold medal in this class. Amongst the other first prizes won by M. Van Houtte were those for *Echeverias*, *Alocasias*, &c., *Caladiums*, *Musae*, *Palms*, *Cycads*, *Azaleas*, *Camellias*, *Rhododendrons*, *Amaryllises*, *Liliums*, *Tulips*, seeds, and publications. The other chief Belgian exhibitors were, among nurserymen, MM. Nuytens Verschaffelt, De Smet, Dallièrre, Ad. d'Haene, Vervaene, De Saegher, Spae, &c.; and amongst the amateurs the President, Comte Kerchove de Denterghem, and M. Ghellinck de Walle are prominent by the extent and beauty of their contributions. They indeed arranged noble collections and worthy of the renown of such famed patrons of the art which they do so much to promote.

The prizes offered by Mr. William Bull to Belgian exhibitors of twenty plants introduced previously to 1873 brought out some excellent collections. The prizes were awarded in the following order—namely, the first prize, a silver cup value fifteen guineas, to M. Massange de Louvrey of Liège; second, a silver cup value ten guineas, to M. Louis Van Houtte; and third, a silver cup value six guineas, to M. Aug. Van Geert of Ghent.

In the Orchid classes for nurserymen Messrs. Rollisson & Sons, Tooting, secure the gold medal of 250 francs for twenty plants in flower, also the gold medal in the class for fifteen plants; in this class M. Beaucarne secures the silver-gilt medal. M. Massange of Liège wins the gold medal for ten exotic Orchids, and M. Van Houtte the first prize, a silver-gilt medal, for fifteen hardy Orchids. In the amateurs' class for twenty exotic Orchids the gold medal of 250 francs is won by M. O. Lamarche of Liège.

Passing the Cactuses, *Echeverias*, *Alocasias*, *Caladiums*, *Marantas*.

Crotons, *Begonias*, we arrive at some important classes—the *Palms*. These noble examples of tropical vegetation always constitute an important feature of a Belgian exhibition. On the present occasion many magnificent examples are arranged, notably by M. Ghellinck de Walle, the distinguished amateur, who secures the gold medals offered for forty and twenty specimens respectively. In the nurserymen's class for twenty-five specimens the gold medal goes to M. A. d'Haene, and in the class for twelve plants to M. Nuytens Verschaffelt. Silver-gilt medals are awarded to MM. Spae-Vandermeulin, Amb. Verschaffelt, and Herrievaux, Paris. *Cycads* were also excellently represented. In the amateurs' class for fifteen plants the gold medal was awarded *à l'unanimité* to M. Ghellinck de Walle. The same exhibitor has the chief prizes in the classes for single specimens remarkable for their beauty and development, the remaining honours going to Comte Kerchove de Denterghem. In the nurserymen's classes MM. Nuytens Verschaffelt and Vander Wouwer, Antwerp, secure the gold medals. The same exhibitors have the principal prizes for exotic tree and herbaceous Ferns, which are both numerous and excellent. For Filmy Ferns the gold medal goes to M. de Smet, who also secures the first-prize silver-gilt medal for hardy Ferns. M. Ghellinck de Walle contributes a fine collection of *Aroids*, for which he receives a silver-gilt medal.

Azalea indicas.—These are magnificent. Nothing in the Exhibition is more imposing than the gorgeous specimens of M. Ghellinck de Walle, who is awarded *à l'unanimité* the gold medal provided by the King for fifty plants. The most skilful and finished culture is exemplified in these grand umbrella-shaped plants. The heads, which are from 6 to 9 feet across, are as true as if cast in moulds, and are densely crowded with fine flowers in nearly all colours in which *Azaleas* are represented. The great gold medal for forty plants is also awarded to the same exhibitor, and the gold medal to M. Beaucarne. In the nurserymen's classes MM. Jean Vervaene and Joseph Vervaene receive gold medals for forty plants, and besides M. Van Houtte already named, prizes are won, and well won, by MM. Vandercruyssen, Boelens, and De Schryver. In the class for novelties effected by grafting, M. D. Vervaene contributes a remarkable collection than which few exhibits more forcibly attract the attention of English visitors. So skilfully have the heads of these plants been grafted that they represent concentric lines of colour as clearly defined as if the flowers had been cut and packed together in cones of moist sand. The colours are associated also with great taste. Mr. Vervaene receives the first prize in this striking class, followed by MM. Vandercruyssen, De Schryver, and Jacques Van Eckhaute in the order named.

Hardy *Azaleas*, especially varieties of *A. mollis*, attract great attention. Mr. Van Houtte exhibits many excellent varieties, but the prizes in the classes go to MM. De Smet, A. Verschaffelt, and C. Vuylsteke. The plants are extremely floriferous, and the colours are very varied.

Camellias are not generally so remarkable as the *Azaleas*, although many fine plants are exhibited. The gold medal for forty plants is secured by M. Van Eckhaute with fine examples of culture, a similar award being made to M. J. De Coster of Melle, for twenty-five plants. M. Linden receives a silver-gilt medal in the class for novelties in grafted plants, a similar award being made to M. Vercauteren of Melle for a new variety raised from seed in Europe. Mr. L. Van Eckhaute receives the silver-gilt medal for a plant remarkable for grand culture and free flowering. Several minor prizes are awarded in these classes.

Rhododendrons are gay, and some of the new varieties exhibited are very good, but on the whole they are not equal to the plants produced by the chief English growers. Greenhouse and Cape plants are not grown on the Continent so well as in England, and Messrs. Rollisson had little difficulty in winning the gold medal for fifty plants in flower in this section. The same firm also won chief honours in the class for *Anætochilus* and *Goodyeras*. Flowering decorative and market plants are not equal to those produced by the English growers for Covent Garden; but *Yuccas*, *Agaves*, *Dasylirions*, &c., were admirably represented by many exhibitors. *Myrtles*, *Aucubas*, miniature *Oranges*, &c., are noticeable; plants of the latter not much more than a foot in height are covered with fruit.

Having now glanced at the classes in which our readers will be chiefly interested, we will briefly describe the character of the Exhibition as arranged in the casino and supplementary structures. The rotunda is an immense hall; in the centre is an oval-shaped bed 120 feet in circumference, composed of the grand *Azaleas* of M. Ghellinck de Walle and Comte de Kerchove de Denterghem. Near the ends of the hall are two smaller round beds of *Azaleas*, a *Palm* occupying the centre of each bed. Four very large pear-shaped beds—the points approaching the central bed and the broad ends the four corners of the hall—are occupied with mixed collections from various exhibitors. Mr. Wills' *Dracenas* and *Nepenthes* fill the greater portion of one of these beds, the remaining portion being occupied with the Comte de Kerchove's excellent *Selaginellas*. Another of the beds is filled with Ferns from the same nobleman and *Azaleas* from M. Vervaene; a third bed with *Azaleas*, Ferns, and flowering shrubs; and the fourth with *Crotons*, *Dieffenbachias*, *Marantas*, *Anthuriums*, *Azaleas*,

&c., from MM. Van Houtte and Vervaene, also groups of *Zamias* and *Rhododendrons*. Another bed near the end of the hall contains a grand example of *Cibotium regale*, and under the shade of its ample fronds are *Marantas* from M. Van Houtte, *Crotons* from M. Ad. d'Haene, and *Ferns* from the President. On one side of the hall at the base of the balcony platform is a very large semi-circular bed, with a great collection of plants from M. Van Houtte—*Rhododendrons*, *Magnolias*, *Ericas*, *Caladiums*, and other fine-foliaged plants; also *Palms* from M. d'Haene. On the opposite side a great collection of *Tree* and other *Ferns* and *Palms* from M. Ghellinck de Walle has an imposing effect. An undulating border is formed along one side and end of the building, and groups of flowering plants, such as *Camellias*, *Azaleas*, *Rhododendrons*, &c., also *Palms* and fine-foliaged plants, are arranged, the other end opening to the annexe. Sufficient space is provided for the convenience of visitors, and the plants are disposed in the most convenient manner for inspection. The effect of this hall, and especially when viewed from the balcony—the gorgeous masses of colour being relieved by the ample fronds of *Palms*, &c.—is highly imposing. It is an exhibition of itself worth crossing the Channel in a storm to see, yet it is only a portion of the aggregate display.

Let us next step upstairs. At the top of the staircase we observe a collection of plants from Mr. Bull, amongst which plants of the *Siberian Coffee* attract the attention of admirers of economic plants. In contrast is a group of the distinct *Dracæna Goldiana*, also *Dieffenbachias Edgworthii*, *Leopoldi*, and *reginæ*, exhibited in Belgium for the first time and much admired. Mr. Bull also exhibits *Anthurium Veitchii*, *Lomaria discolor bipinnatifida*, and a group of new *Aralias*, a fine *Palm Martinezia Roezlii*, &c., and the rare *Palm Pritchardia grandis*. M. Linden's collection contiguous contained striking examples of *Anthurium crystallinum longifolium* and *A. Dechardi*, *Aralia elegantissima*, *Tillandsias* of great promise—*Massangea Lindenii*, *M. Lindenii* var., and *M. Lindenii* variegata, a trio of very beautiful *Bromeliads*, which will be heard of again. M. Linden also exhibits new *Palms Pritchardias aurea* and *macrocarpa*, *Kentia Lucynana*, *K. Lindenii*, &c. We next come to fine collections from M.M. Van Geert and Van Houtte, amongst which a splendid group of *Bertolonias* from the latter named exhibitor are regarded as the gems of the Exhibition on account of their varied and glowing colours. These plants are noteworthy as having been raised in M. Van Houtte's establishment by the skilful hybridist M. Van Eckhaute. It is in this section of the building that the plants are arranged in competition for the cups offered by Mr. Bull. Near them and in admirable contrast is a group of tuberous *Begonias* in flower. The new glazed hall or conservatory—a splendid building—is also occupied with splendid plants, ornamental-foliaged plants and grand *Azaleas*, marvellous by their beauty and culture. The general effect of this building is extremely rich.

There is yet another very large temporary building occupied with plants. At the end opposite the entrance of this roomy structure is M. Hoecke Peeter's stalactite grotto skilfully arranged. A waved border quite filled with plants, the groups of thirty exhibitors, nearly surrounds the building. A walk is formed down the centre, on both sides of which are arranged two irregular rows of isolated beds, some of them being very large. These seven beds present an imposing appearance. A bed near the centre contains Messrs. Rollison's collection of greenhouse plants, also *Agaves* and *Araucarias*; another is filled chiefly with *Rhododendrons*, and the others with flowering and foliage plants from about twenty exhibitors, for in Belgium all the plants are arranged for effect after they have been judged.

Still other structures contain plants; but we have said sufficient to show that the Exhibition is one of great magnitude, and we trust that it will prove as successful to its promoters, and to those who have aided in producing it, as the great efforts made demand that it should be. Such occasions enable the floral resources of nations being seen at a glance, provide the means for old international friendships being strengthened and new associations formed, give an important impetus to horticultural commerce, stimulate to further effort, and sow the seeds of future and greater gatherings and greater successes. To our Belgian friends we offer English congratulations, and we appreciate all the endeavours they have made, and made successfully, to render a visit to their shores so pleasurable and instructive.

ROYAL HORTICULTURAL SOCIETY.

APRIL 2ND.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. Although most of the chief nurserymen are sustaining the honour of British horticulture at the great Ghent Exhibition, there were sufficient plants left at home to make a very attractive display in the conservatory. To this result the late adverse weather had, contrary to the usual order of things, to a great extent contributed, for had it not been for the extraordinary storms of last week the following fine Orchids from the nurseries of Messrs. Veitch would have been arranged in the Casino at Ghent instead of in the con-

servatory at South Kensington:—*Cypripediums selligerum*, *Argus*, *Harrisianum*, *Haynaldianum*, *Schlimii album*, *Dayanum*, *villosum*, and *Lowii*; *Dendrobiums crassinode Barberianum*, *Wardianum*, *Wardianum album*, *macrophyllum giganteum*, *chrysotum*, *Cambridgeanum*, and *Devonianum*; *Lycastes Skinneri* and *Skinneri alba*; *Masdevallias Lindenii*, *Veitchiana*, and *igneæ*; *Odontoglossums Rossii majus*, *Roezlii album*, *luteo-purpureum*, *prænitens*, *gloriosum*, *cirrhosum*, *cordatum*, *Cervantesii*, *Alexandra*, *Pescatorei*, *Halli*, *Andersonianum*, *triumphans*, *Roezlii*, and *roseum*; *Oncidium concolor*, *Forbesii*, *Marshalli*, *sarcodes*, *fuscatum*, and *leucochilum*; *Stenia fimbriata*; *Lælia Pilcheriana*; *Vandas cristata*, *suavis*, *meleagris*, and *tricolor*; *Ada aurantiaca*, *Bollea Lalindei*, *Cattleya citrina*, *Cymbidium eburneum*, *Aerides Fieldingii*, and *Phalenopsis Schilleriana*; *Anthurium Scherzerianum*, fine var.; *Sarmienta repens*, and *Imantophyllum miniatum superbum*. A group of *Amaryllis*, including the following named varieties:—*Brilliant*, *Miranda*, *Junius*, *Olio*, *Sir Trevor Lawrence*, *Phædra*, *Bismarck*, *Mrs. Speed*, and *Haydn*. Six named *Gloxinias*—*Vesuvius*, *Duchess of Teck*, *Duchess of Edinburgh*, *Sir Stafford Northcote*, *Pageant*, and *Lord Derby*. A group of *Roses*. Such an array of Orchids with *Gloxinias* in variety, *Palms*, *Amaryllises*, and upwards of sixty *Roses* in pots constituted an extremely fine display. In this collection was also exhibited the very rare and almost extinct Gesneriaceous plant *Sarmienta repens*, which was introduced from Chili many years ago. It inhabits very moist places, and is covered with brilliant scarlet flowers. A gold Banksian medal was recommended for this collection.

Mr. B. S. Williams, Victoria and Paradise Nurseries, Holloway, sent a varied and excellent collection, consisting of well-grown Orchids, *Amaryllises*, *Ferns*, and ornamental-foliaged plants, to which a silver flora medal was awarded. A botanical commendation was also awarded to Mr. Williams for *Masdevallia radiosa*, which was very curious. Mr. J. Aldous staged an artistic group of fine-foliaged and flowering plants, and a silver flora medal was also awarded. Sixty pots of *Cinerarias* were exhibited by Mr. J. Levesley, Spring Grove Lodge, Isleworth. The plants were particularly dwarf in habit, not exceeding 8 inches in height, and were in 48-sized pots. Mr. Levesley also sent a small group of *Cyclamens* and *Polyanthuses*, which received a bronze Banksian medal. Messrs. Osborn & Sons arranged an admirable group of fine-foliaged and flowering plants, and were awarded a silver flora medal. From Messrs. Barr & Sugden, Covent Garden, came an extensive and highly attractive collection of *Narcissuses*, and were awarded a silver medal. A silver Banksian medal was given to Mr. Heims, gardener to F. Philbrick, Esq., Q.C., Regent's Park, for a very choice collection of Orchids, principally *Odontoglossums*, with a very fine plant of *Cattleya citrina* in the centre of the group.

Prizes were offered at this meeting by an amateur for seedling *Amaryllises*, the first prize going to Mr. F. Knowles, gardener to H. Little, Esq., Hillingdon Place, Hillingdon, for a very dark flower named *Crimson Banner*, which variety was also awarded a first-class certificate; the second prize was awarded to Mr. B. S. Williams for Dr. Hogg, a large and showy pale scarlet flower of excellent form and substance.

Some very fine flowers of *Crinum pedunculatum* came from Mr. C. Green, gardener to Sir G. Macleay, Pendell Court, Bletchingly, which received a vote of thanks. A similar award was made to Sir C. W. Strickland, Bart., Hildenly, Malton, for *Crinum campanulatum*. To Mr. R. Dean, Ealing, a first-class certificate was awarded for *Primrose Prince Charming*, crimson striped with white; it was indeed a charming variety. Mr. Dean also received a vote of thanks for seedling varieties of *Primula intermedia*; and Mr. Cannell, Swanley, Kent, was highly commended for boxes of cut flowers of *White Vesuvius*, *Striped Vesuvius*, and *Salmon Vesuvius* *Geraniums*, and a stand of twenty-four distinct varieties. From Mr. W. Chitty came a basket of *Narcissus Bulbocodium*, which also received the thanks of the Committee.

THE FRUIT COMMITTEE had no duty to perform except awarding a vote of thanks to Mr. Joshua Atkins, gardener to Col. Lloyd Lindsay, Lockinge Park, Wantage, for very fine bunches of *Black Alicante Grapes* which had been kept in remarkably good condition. A dish of lily white *Seakale* was sent from the Society's garden at Chiswick. A cultural commendation was awarded to Mr. M. McLean, The Gardens, Linton Park, Maidstone, for a beautiful collection of *Variegated Greens*, some of which were very striking.

NEW BOOK.

Roses and their Culture. By W. D. PRIOR, with numerous Woodcuts and Coloured Illustrations. G. Routledge and Sons, London.

THE following extract from the preface is a true representation of the contents:—

"The following little treatise begins at the beginning. The arrangement followed is that of first presenting a general view of the subject, and afterwards proceeding to details of practical culture. The instructions laid down are the result of many years'

experience (sometimes under no small difficulties) as an amateur, corroborated by intimate acquaintance with the routine pursued at some of the most celebrated Rose nurseries, the proprietors of which the writer has the happiness to number amongst his personal friends. Nothing, therefore, laid down in the following pages is the result of mere speculation or transcription from other books."

The "coloured illustrations" are the worst we have ever seen.

PARAFFIN STOVES VERSUS FLUES.

"A. C.'s" experience as detailed on page 203 of the Journal came too late to help me, but I am not the less thankful for his communication, as also for that of a previous correspondent. Who amongst your poorer readers is not tantalised by being instructed "to sow this or that in heat," "to strike cuttings in bottom heat," &c., when in the poverty of their gardening apparatus they might as well be told to take the moon in their arms or walk head downwards? Such instructions may be just suitable to the rich or the large gardens of those who can command any resources, but for the amateur or small gardener they are simply useless.

But the want of appliances often teaches us to discover simple and cheap means to attain our ends. Finding no direct response to my application on page 92 I determined to experiment for myself. I procured for 1s. 9d. a common paraffin lamp and glass. I made a radiator by cutting slits in an old 6 lb. Australian meat tin, and placed it at the open end downwards on my lamp. I put it into a small closet and found I could get any heat I liked up to 80°. Here was a discovery. Thereupon I had a tinsmith to make me a cylinder 12 inches high by 6 in diameter as figured at B, a wire handle



Fig. 38.—Paraffin stove.

- A, an ordinary half-inch single-wick common lamp (mine is one of Hinks & Son's).
 B, a tin radiator or cylinder, with air holes top and bottom.
 C, a wire handle with a wooden centre.
 D, the cylinder is open, so that it can be placed over the lamp.

at C, and open at the bottom at D. The top of the cylinder had twelve holes punched in it half an inch in diameter, and at the foot twelve slits were cut to admit air. I placed my lamp in a Cucumber frame 8 feet by 4, and when lighted I put the cylinder C B D over it and let the handle C fall to the side. The lamp will burn thirty-six hours without refilling, but I find it best to fill up once in twenty-four hours. The cost per twenty-four hours is rather more than a farthing, as the paraffin costs 1s. 2d. per gallon. I can, with the outside temperature at 50°, raise that of the frame from 60° to 80° at pleasure; and this day, with the glass at 33°, my frame is enjoying 55°, and I could have more heat if I choose to turn up the wick.

There is neither smell nor smoke. No attention is required beyond filling the reservoir and cutting off the dead wick twice a week or so, and though I am only trying it to-day with a delicate Fern inside the frame, I am quite confident it will not be injured any more than the *Lobelia*, *Ageratum*, *Zinnia*, &c., now coming forward in my seed bed under heat with 60° to 65°! Probably Hinks or Ripplingill or some other lamp-maker will take the hint and make a stove for 2s. 6d. or 3s., which they can easily do, for the million, for very sure I am that whilst many must have longed for heat, their pockets have softly sung to them the refrain of "Not for Joseph, oh,

no, no." With the severe frosts daily this week I have had my experimental frame heated from 48° to 55° night and day; once every day for a few minutes sufficing to trim and refill the lamp.—E. H.

JUDGING ROSES.

SURELY nothing was ever devised more inconvenient to Rose-growers than the present rules as to the time of judging Roses at the various exhibitions. By nine o'clock each exhibitor must have entered the show, and by 10.30 he must have staged his blooms. Now what does this mean to the majority of exhibitors? It means cutting your blooms thirty-six hours before they are judged. Consequently it ensues that numbers of blooms upon which we depended for our success have lost their freshness, and are *parade* and almost worthless. These have to be replaced by spare blooms, which we cut when little advanced beyond infancy or little better than buds, and the chances are very great that these blooms are often very mediocre to say the least, as it is impossible always to tell what a bloom will be when in the bud.

But what remedy is possible? What course do I recommend which will be an improvement upon the present system? Well, I have an idea, but it is borrowed—in fact it is a still-born plan of Mr. George Paul's. Some years ago that famous rosarian propounded a plan to two or three leading rosarians which, if adopted, would prove a complete remedy for all the drawbacks above stated. This was that our show should open, not at one as now to the public, but at five or six. This would enable rosarians at a distance to cut and bring their blooms the morning of the show by the first train, and have them ready for the judges by three or four o'clock. The show would then be kept open till ten o'clock, and perhaps might attract numbers of business men and others who cannot attend under the present system without sacrificing valuable time.

Several rosarians to whom this idea was divulged approved of the plan and promised to support it; but if I remember right someone who never shows opposed the idea, and nothing came of it. But the idea is, in my opinion, so good that I thought I would ask your permission to ventilate it in the Rose Journal, and perhaps something may come of it.

It is obvious that growers in the far west and north show under great disadvantages, and are, so to speak, severely handicapped in the contest for fame and honour at Flora's court; while men who live within a few miles of the metropolis have everything in their favour, unless we except perhaps climate, which is about equal. A man who can cut his blooms about three o'clock on the morning of the show and place them on a cart and convey them direct to the Crystal Palace, has an immense advantage over the man who cuts at three o'clock the previous morning and has to convey these blooms first to the station in the heat of the day, then have a long journey to town, and it may be have to move his boxes from train to train, and when he arrives in London has once more to put them upon a conveyance and drive to Sydenham. But some such plan as that I have named would at least give the countryman a little more time and make the odds not quite so many against him.

It is a perfect marvel to me how blooms do stand the knocking about; but all depends upon their strength and substance. I do not think a more extraordinary instance of the strength, and endurance, and longevity of a Rose bloom can be adduced than the following, but if there is I should like to hear of it. I can vouch for the facts.

Mr. Baker had a marvellous bloom of Marie Baumann out on the Sunday before the Crystal Palace Show. He called his wife out of the house, "Do come and look at this Marie Baumann, I do not think I ever saw a finer bloom." He showed that bloom on Thursday and Friday (a two-days show that year) at Exeter. His boxes were then taken home, and the bloom being still good he took it to the Crystal Palace, where it formed one of the forty-eight which won the first prize, and before he left the Palace he went to look at his box to see if Marie Baumann was still alive, and she was not only alive but kicking—i.e., as good as ever. I believe the bloom was sold for half a crown by the gardener, and taken home by some enthusiastic rosarian, who had it blooming on his table for another week; but I am not sure of this, so cannot "paint the Lily" and adorn the tale with what I cannot vouch for.

But this is a case which could only occur, perhaps, once in a lifetime. The weather at the Exeter Show was vile—rain all the day, so the atmosphere in the tent was as cool and

nearly as dark as in a cellar, and the time of year was the early part of June before the sun's rays became so fierce as in July.

And now I come to a matter upon which I should like to have the opinion of my Rose brethren, and that is the important matter of water. What kind of water shall we fill the tubes with? Is it to be cold spring or pump water, or rain water? or shall we do what a colonel of a cavalry regiment once ordered the son of a famous confectioner to try on a restive horse, "ice it?" My friend Canon Hole in his book upon Roses recommends (if my memory does not mislead me) rain water, others (myself included) spring water, while two great rosarians have tried with the greatest success ice water. Mr. Cant tells me that he iced the water in which his Rose blooms were placed that he took to Scotland, and he was astonished how much fresher they were than those of his great rival who had come an equal distance. Mr. Baker used melted ice for his National blooms, but he is a little doubtful about it; and an equally excellent rosarian, the lady who presides over the Heavtree dinner table, thinks that it was a mistake. She inclines to the idea that the ice prevents the blooms opening, which undoubtedly it does, and which is the intention; but for such a journey as from Exeter to London with such stuff as the Heavtree Roses consist of she holds that it is wrong. What say other great authorities? I have not yet tried it, but am inclined to go with Mr. Cant.

I think I have opened two subjects of great interest to your readers, and if the discussion that this article evokes is in any degree proportionate to that of my letter on Rose-judging the result will, I hope, be as satisfactory to your subscribers as it will be to a—WYLD SAVAGE.

I HAVE attentively perused the correspondence about judging in the *Journal of Horticulture*, and agree with all Mr. Baker says on the subject.

Most rosarians agree that form, colour, and size should stand in the order written.

A judge should certainly be a successful exhibitor, not *have been*, for he should be conversant with the new varieties.

I think point cards should only be used as a *dernier ressort*, for that method of determining the comparative merits of stands takes no account of evenness—a very important feature in my opinion, neither of arrangement of colour, another point of considerable importance.

I am inclined to think Teas and even such Hybrid Perpetuals as Madame Furtado, Marquise de Mortemart, &c., should have extra points. I am always puzzled both in exhibiting and judging when Teas and Hybrid Perpetuals are juxtaposed. No doubt a few of the former greatly enhance the beauty of a stand, yet they seem so distinct from the more masculine Hybrid Perpetuals that to compare them is like attempting to decide if Adonis or Venus be the more beautiful.

I should like to see amateurs and nurserymen set to adjudicate the exhibits of their respective classes. I mean amateurs to judge the Roses of amateurs, and nurserymen those of nurserymen; but that, as a secretary, I know cannot well be.

Let there be three judges to a class if possible, never one. I never was dissatisfied with an award except once, when a solitary judge put my box second because I had placed in it what I thought a fine bloom of Madame Lacharme. He did not like the Rose. He, however, placed me first for Teas when I should have been second.

On the whole I am disposed to think no satisfactory rules can be drawn up for the guidance of judges. I call to mind, however, how little a really good "all round" gardener often knows about Roses. Such a man might be grateful for rules.—HUBERT BENSTED.

PRUNING PEAR TREES.

No doubt, as is suggested by "A COUNTRY PARSON" on page 247, that some varieties of Pears produce fruit buds on the young wood, and especially at the "ends of the shoots," more freely and quickly than do others; but I have never yet seen a Pear that will not form natural spurs if it is permitted to do so.

Your correspondent has rightly remarked on the tendency of that valuable late Pear *Joséphine de Malines* to produce fruit buds at the extremities of the shoots, which shoots are frequently cut off, causing direct loss of fruit. The same remark applies with equal force to one of the most delicious of autumn Pears, *Marie Louise*. Those, and some other varieties

that might be quoted, show in a very marked manner the errors of the system of pruning that is now pretty general, so far at least as regards the production of full crops of fruit. If a dwarfed tree of rigid symmetrical outline is of more moment than a large supply of fruit, then close pruning of roots and branches must be adopted; but if the main object of growing trees is the production of fruit, then I assert that the fancy pruning now so common is fallacious.

I am well aware that there are positions by the sides of walks in gardens where it is necessary to restrict the growth of trees to a prescribed standard, and when such trees are well managed they produce fruit freely. I have adopted that mode of fruit culture; indeed, had I not practised that and other systems of management I should not have ventured to write on the subject. I do not object to close pruning when circumstances demand it provided the work is rightly done; but what I object to is the unintelligent way in which I am obliged to see trees treated by letting them grow thickets of shoots 2 feet long in the summer, and shortening the laterals to 1 or 2 inches and the terminals to about 6 inches in the winter, while the roots remain untouched. That is the way in which thousands of trees are managed—extension in the summer and restriction in the winter, and both with a vengeance. I agree entirely with what "A MIDLAND COUNTIES FRUIT-GROWER" has written upon this subject. There is too much summer growth permitted and winter cutting indulged in; and the result is, taking the country through, that hundreds of tons of fruit are wasted—i.e., prevented forming on the trees.

If summer growth is permitted and a large return of fruit is required the rational plan is to thin out a sufficient number of branches, so that the sun can shine through the trees, not in winter only but in summer, and do very little in the way of shortening the branches remaining, and shortly the trees will be studded with fruit spurs. That is what very extensive observation and several years of experience have taught me; and I have further found and observed that trees thus managed are, so far as appearance goes, far more often handsome in shape than unsightly.

It has been my duty to grow fruit trees on the restricting system, and I remember about eight years ago planting a tree of Williams' Bon Chrétien Pear to fill up a vacancy, and the tree had to be pruned in the same manner as the others in the garden. At the same time I purchased a tree of the same size for a cottager. Both trees were planted in the same week. My tree has been pruned regularly and has produced good crops of fruit; the cottager's tree has not been pruned at all, unless the removal of a stray branch growing across the others can be called pruning, and I am quite certain that the unpruned tree has produced as many bushels of fruit as the pruned tree has yielded pecks. I grant that the fruit from the restricted tree has been finer than that of the naturally grown example, otherwise I should feel much humiliated; yet nevertheless the produce of the cottager is sufficiently fine to be eagerly purchased by the fruiterers of the adjacent town.

Two years ago my attention was directed to some very old *Marie Louise* Pear trees trained to a wall. They had produced luxuriant breastwood for years, which was duly spurred-in during the winter, but they produced scarcely any blossom. They were indeed regarded as hopelessly barren—worn out. On pointing out to the owner that by cutting off the young wood he had prevented the formation of fruit spurs, he took me aback by saying he would not prune the trees any more: he cared nothing about looks, but wanted fruit. The trees were left unpruned in all their slovenliness, and now they are studded with thousands of fruit buds. Sturdy branches have grown 3 feet above the top of the wall and will soon be as "white as a sheet" with blossom. Weather permitting more fruit will be gathered from the trees next autumn than has been produced by the trees for the past ten years. This example of management or neglect is not suggested as worthy of imitation, but is simply adduced as illustrative of the error of letting summer growth extend for the purpose of shortening it in the winter—one long course of irrational routine, as hacking as it is hacking—a fruitless round.

When trees are planted for the purpose of producing maximum crops of fruit in a minimum amount of time let Nature preponderate over Art in their management. Art may prepare the soil by draining it when necessary and otherwise rendering it fertile, and also may aid in admitting the sun to the foliage by thinning out superfluous growth. Nature then will have fair play; she will be assisted, not obstructed, and fruit buds are as certain to follow as day follows night.

Trees thus managed are those that will supply large families and markets with useful fruit. It is the system,* too, that should be advocated for cottage gardens, where the philosophy of pruning is necessarily not understood, and more real benefit would result than by encouraging the adoption of the pretty dwarfing system where it cannot be carried out profitably.

One of the wants of England at the present time is more fruit—useful home-grown fruit, and one of the most certain ways of attaining it is, in my opinion, to be found in less pruning.—J. W.

AURICULAS.

If this cycle of mild winters and cold and severe springs continue a change must come "o'er the spirit of our dream" in many ways. All hope of growing Peaches, Apricots, and Nectarines on unsheltered walls must be abandoned, and even the florist will have to reconsider his ways. In common with many of the older florists I have all along deprecated the use of fire heat for Auriculas; but when such experienced growers as Messrs. Horner, Booth, Woodhead, Simonite, and others assure us that not only does it not injure them but that they thrive under it, it would be idle to put past experience in the scales against present necessity; and when one looks abroad on this April-fools' day and sees fully 4 inches of snow on the ground and marks that in the shade at 10 o'clock A.M. it is freezing hard, it is clear that a revolution has taken place, and we must adapt ourselves to these altered circumstances.

In looking back a few years I can remember seasons within the last ten years when the greater number of my plants were over by the middle of April, but that, as a general rule, from the 18th to the 21st of April they were about at their best; and when the proposition to hold a National Auricula Show was made some years ago, the great difficulty was to fix a time sufficiently late for the southern growers to have anything like a fair chance with the northerners, and when the 30th of April was ultimately fixed it was found that the former were at a great disadvantage. Now the Northern Auricula Show has been fixed for that very date, and the Southern one for only four days before it, and we may expect to see many of the northern growers at the Crystal Palace. I am writing down mainly from the exhibition point of view, for I have no doubt that whatever may be the altered character of our springs, the flowers would not be injured where care was taken to cover the frames well, much less where they are grown in pits where they are more easily protected, and even without protection warmer than in frames.

In one respect I am sorry for this, for if the Auricula must be considered a greenhouse flower as far as exhibition purposes are concerned, the smaller, and I may add the poorer growers, must be distanced by the wealthier. It is not everyone that can afford to build a pit and heat it, and if the exhibition of last year is to be taken as a criterion it is clear that those who have used fire heat will be the prizetakers.

The present season is, I am convinced, as late a one as last year if not later, and this judgment is not formed from the state of my own collection, but those of several friends who are Auricula growers; of my own I say nothing. The double potting produced the results that one fairly anticipated, and has both made them very late and diminished the size of the trusses; for the second potting had to be done before the heart was formed, and consequently at a time when the energies of the plants ought to have been thrown into the formation of fresh leaves and the truss. They had to be divided between that and the making of fresh roots; for it was not like simply repotting into a larger pot, where a ball may be left with a certain number of roots, which had only to emit fresh rootlets, but every atom of root had to be cleaned or washed, and thus great stress was laid upon the power of the plant.

We shall hope to see a fine collection of plants at the Crystal Palace, more exhibitors I hope, and a wider interest taken in this lovely flower.—D., Deal.

ODDS AND ENDS.

In my early days scarlet *Lychnis* was popularly called Bridget in her Bravery. This name no doubt was given because it is in flower in July, and St. Bridget was commemorated on July 23rd.

Dianthus barbatus, now commonly called Sweet William, was, and still is sometimes, called London Tuft. The Wall-flower again was called Sweet William, and the name is not

yet obsolete. The 25th of June is the day that was dedicated to St. William.

Devil's Guts was a vulgar name for Bindweed (*Convolvulus arvensis*), expressive of the detestation in which it was held by rustics.

Fox-poison was the popular name for the Spurge Laurel.

Southernwood was and is still called Lad's Love.

Arum maculatum is known as Lords and Ladies. I believe it to be a far-fetched conceit that this name was given to it because lords and ladies had their ruffles stiffened with starch made from this plant.

The popular name of *Ranunculus arvensis* (Corn Crowfoot) is Pickpocket, marking it as injurious to farmers.

The Yew was formerly called Vew, but the word is going out of use.

Hylla (Danish *Hyldre*) was the name for Elder.

Prime is still used for Privet, and Ivin for Ivy.

The young shoots of the Briar when peeled were called Sweet Briar and eaten.

The young leaves of the Whitethorn are eaten by children and called Bread and Cheese.

Parsley has a mystery attached to it. The cause of the seed lying so long in the ground is that it goes to the infernal regions and back three times before it comes up. Any person transplanting a root of Parsley is said by the superstitious to be sure to die within the year.—A LINCOLNSHIRE COUNTRY VICAR.

PHEASANTS AND CROCUSES.

MR. HANBURY of The Poles, a place I remember to have seen described in the Journal, wrote lately that the pheasants about his place devoured the yellow Crocuses, but left those of another colour, and wished to know if others had observed a similar occurrence. I have for many years in succession. I planted a long ribbon border of yellow, blue, and white Crocuses. Something seemed to attack the yellow strip, which the gardener thought must be slugs or sparrows. One day I and several friends watched out of the window the amusements of three pheasant cocks within a few yards' distance. They commenced at the top of the border and took the yellow row before them, but never meddled with the others. What connection exists between colour and taste for these birds I cannot say, but there must be some, otherwise it would not take place season after season. Some clever man recommends dipping the bulbs in paraffin. This has nothing to do with it. It was the bud and flower which they ate, not the bulb at all.

The black grouse or black game have a similar taste. When I rented a moor on the Northumberland border I and my guests, when changing for dinner, observed that a fine lot of black cocks came every evening to a field opposite the windows, and were evidently feeding on something. The said field was wretchedly poor and exhausted, having been ploughed and no management given it afterwards; in short, three parts out of four were bare soil. I sent my lad, who crawled behind a wall and shot one with a pea rifle. We had an M.D. in company who was a great anatomist, and we opened its crop directly. The contents consisted of flowers of several of the Hawkbits, Hawkweeds, and other yellow flowers; but all yellow.

At this moment I have a tame black cock. It came here shortly after harvest, and is evidently an escaped hand-reared bird, as their nearest habitat is the Scotch border thirty miles distant, and it associated with the domestic fowl immediately. It has become perfectly troublesome, and has driven all the tame pheasant cocks from the lawns and pleasure grounds. This bird never leaves the house far, and I have observed, and so has the old gardener, that it snaps off and eagerly devours the flowers and buds of the Coltsfoot as fast as they appear, also a flower called *Doronicum*. A year or two since I noticed a peculiar chirp of some bird which was not familiar to me. It perched within a yard or so as I was sitting near a fountain. It was the blackcap warbler (*Syl. atricapilla*). I find it recorded only once before in Cumberland. Yarrel, in his account of it, says that it prefers red fruit. A day or two afterwards my gardener, while taking his usual respite after dinner, saw the hen bird and several young ones sitting on a rail which supported some Currant bushes. He watched them a long time, being a bird fancier, and told me that the mother in every instance brought and fed them with a red Currant or red Raspberry, but never a white one, though both sorts were growing close to each other, and each equally ripe. I was in hopes that this pair would return next

season, as some of our books say they do, but we have not seen them since.—J. GILLBANKS.

OUR BORDER FLOWERS—RUEWORTS.

THE Fraxinellas at first sight give us the impression that we are looking on some diminutive variety of Fraxinus, so much do the leaves of the two resemble each other; to that circumstance is attributed the name Fraxinella, by which this fine old occupant of our borders used to be known. It is also called by the name of Dittany or Dictamnus rubra. By whatever name it is known there can be but one opinion respecting its merits as a border flower; the least that can be said of it is that it ought to have a very prominent place in every herbaceous border and in all cottage gardens. Perhaps it is one of the oldest of our border flowers, and at the same time one of the most neglected. When once thoroughly established and left alone it lasts for a lifetime. The white variety does not appear to have the robust habit of *D. rubra*, but its beautiful flowers make up for other deficiencies.

There is some difficulty in increasing these plants; it can be done by division, but requires skill and patience, as they do not produce many side shoots; they are also increased by seed sown as soon as ripe in the light, rich, well-drained soil of a sheltered border, but the seed does not always vegetate, from what cause I am unable to say. Sometimes the seedlings do not make their appearance until the second year. They thrive in good, sound, sandy loam; they are impatient of too much wet, and require efficient drainage. The strongest plants I have met with are growing in limestone districts, some of them having attained to the dimensions of moderate-sized Gooseberry bushes, but such plants are few and far between. They are suitable for open spaces in the shrubbery and for the centres of beds where herbaceous plants are cherished. The Fraxinellas are amongst the choicest and oldest of our old favourites.—VERTITAS.

KEW GARDENS.

LOCAL agitation for the earlier opening of Kew Gardens and making them primarily a rendezvous for general recreation has caused more of public attention than usual to be directed to them. Our own views of the question at issue have been stated plainly and clearly, and from the position we have taken we do not swerve.

We regard the Royal Botanic Garden at Kew as a national educational establishment formed for the promotion of botany, horticulture, and allied sciences, and for turning them to practical account both at home and in the colonies. That we regard as the primary object for which the gardens were and are established and supported. Holding those views we could not permit ourselves to be so far disloyal to the science with which we are identified, and to the great body of horticulturists that we share in representing, to give our acquiescence to a measure which essentially renders the principle of this great technical establishment subservient to the pleasures of the local community. We will not silently permit a change being made of so fundamental a character, nor allow the educational nature of the gardens to be made a secondary object. What we contend for is this—that the real and leading object for which the gardens were established shall be sustained in its integrity, and that local pleasure shall be subservient to national education, not national education to local pleasure.

We do not forget the gardens at Kew are supported from the national exchequer, and we recognise the equity that as the public pay for them they have a right to enjoy them. The public do enjoy them for as great a length of time as is compatible with the due performance of the real and important work of the establishment. If earlier admittance is conceded to the local public the work of the gardens, we have good reason for supposing, cannot be so well done as it is now, at any rate without involving a considerable increase of expenditure. And what does this mean? It simply means that the real public—the great body of taxpayers of the nation—shall pay more than they have hitherto done for the mere gratification of an infinitesimal section of the community who happen to reside in the vicinity of the gardens. We fail to recognise the justice of a change of that nature. If the agitation now in progress were a national one—if the majority of the taxpayers of the nation were desirous that the gardens be opened to the public earlier, and were willing to pay the additional sum that would be required for that privilege, then the question would be different. But the agitation is not a national

one; it is not even a metropolitan one. It is neither the public of Britain nor the citizens of London who are moving in the matter, but simply the residents of Kew and its neighbourhood. No doubt the petitions in large characters which have been adroitly spread at the metropolitan railway stations—Waterloo, for instance—have caught a certain number of signatures; but what do they represent? Simply that a certain number of people are desirous of enjoying as great amount of pleasure as possible for—nothing. Signatures by thousands could be obtained for the opening of the Crystal Palace on Sundays, especially if it was to be opened free of cost; also for entrance into the British Museum at all times, as well as other government establishments. But in all such establishments it is necessary to close the doors during certain days and hours in order that real and necessary work may be efficiently performed. If that was not done the places would lose their interest and depreciate in value. And so it would be with Kew Gardens; if the working of the establishment was impaired it would lose its value, and it would not be worthy of its name of a national garden. We cannot consent that the mere gratification of a very local and fragmentary portion of the community shall outweigh the important requirements of a nation, including its colonies, which the gardens of Kew were appointed to supply.

We are not surprised at the manner in which the agitation movement has been supported by the local press. Indeed the local press would have been disloyal to local interests had it taken an opposite course. Members of Parliament must also give attention to local interests, simply because they are generally pledged to do so. We neither blame the press nor the inhabitants for the course they have taken; but it is another thing altogether for the Government to sanction a radical change being made that would impair the horticultural, botanical, or scientific status of Kew, or which would increase its cost to the nation except by a national demand. As soon as we have authoritative assurance that the necessary work of the garden can be duly performed in consonance with earlier admittance being granted to the public we have not the slightest objection that the gates be opened even at six o'clock in the morning. The question resolves itself into one of duty *versus* pleasure, and we simply adhere to the principle of placing duty first.

A brief historic notice of Kew will not be inappropriate; we therefore extract the following from the twenty-seventh edition of the "Guide to Kew," written by the late Sir William J. Hooker:—

"About the middle of the seventeenth century the spot that now forms the Royal Gardens of Kew, together with a residence called Kew House, belonged to R. Bennett, Esq., whose daughter and heiress married Lord Capel. Kew House and Grounds then passed into the hands of Mr. Molyneux, who was secretary to King George II. when Prince of Wales, and who married Lady Elizabeth Capel. The Prince of Wales, who was son to George II. and father to George III., admiring the situation of Kew House took a long lease of it from the Capel family about the year 1730, and began to form the pleasure grounds, then containing about 270 acres. They were completed by his widow, Augusta, Princess Dowager of Wales, who delighted in superintending the improvements, then conducted upon a most extensive scale. The exotic department of this garden was commenced by the same Princess and much favoured by the Earl of Bute, about the middle of the eighteenth century. Many of the finest foreign trees were contributed by Archibald, Duke of Argyll (styled by Horace Walpole the Tree-monger), who sent them from his once richly stored garden at Whitton near Hounslow.

"About the year 1789 His Majesty George III. purchased Kew House, and Queen Charlotte evinced much interest in the increase of the collection of plants. Under such auspices, and aided by the enlightened patronage of Sir Joseph Banks, it was only to be expected that the gardens of Kew should become celebrated all over the world.

"The voyage of Capt. Cook and Sir Joseph Banks round the world; those of Capt. Flinders and Mr. Robert Brown (Botanicorum Princeps), and of Mr. Allan Cunningham to Australia; the expeditions of Bowie and Maasson respectively to Brazil and the Cape of Good Hope—all these enriched the gardens of Kew with the vegetable productions of the southern hemisphere to an extent unparalleled before; besides which, other collectors were employed during a long period in various countries, and the produce of their researches was deposited at Kew. On various occasions, especially during the life of King

George III., many houses, stoves, and pits were erected; but on the demise of that monarch and of Sir Joseph Banks, who died shortly after the King, the establishment suffered from want of royal and scientific encouragement. During the reigns of George IV. and William IV. the botanic gardens retrograded, and matters must have been much worse but for the able exertions of Mr. Aiton and of his foreman (the late Curator) Mr. John Smith, A.L.S. Throughout the country an opinion existed, which soon began to be loudly expressed, that either the gardens should be entirely abolished or placed upon a very different footing, and rendered available as a great popular yet scientific establishment for the advantage of the public.

"Government was, happily, ready to respond to this latter feeling, and in 1838 the Lords of Her Majesty's Treasury appointed a Committee to inquire into the management, condition, &c., of the Royal Botanic Gardens. The result was that in

May, 1840, a return was made to the House of Commons in the shape of a report by Dr. Lindley, who, at the desire of the Committee, had surveyed the gardens in conjunction with two well-known practical gardeners.

"Many useful suggestions offered by Dr. Lindley were acted upon, especially the following:—A national garden ought to be the centre round which all minor establishments of the same nature should be arranged; they should be all under the control of the chief of that garden, acting in concert with him, and through him with one another, reporting constantly their proceedings, explaining their wants, receiving their supplies, and aiding the mother country in everything that is useful in the vegetable kingdom. Medicine, commerce, agriculture, horticulture, and many valuable branches of manufacture would derive much benefit from the adoption of such a system. From a garden of this kind Government would be

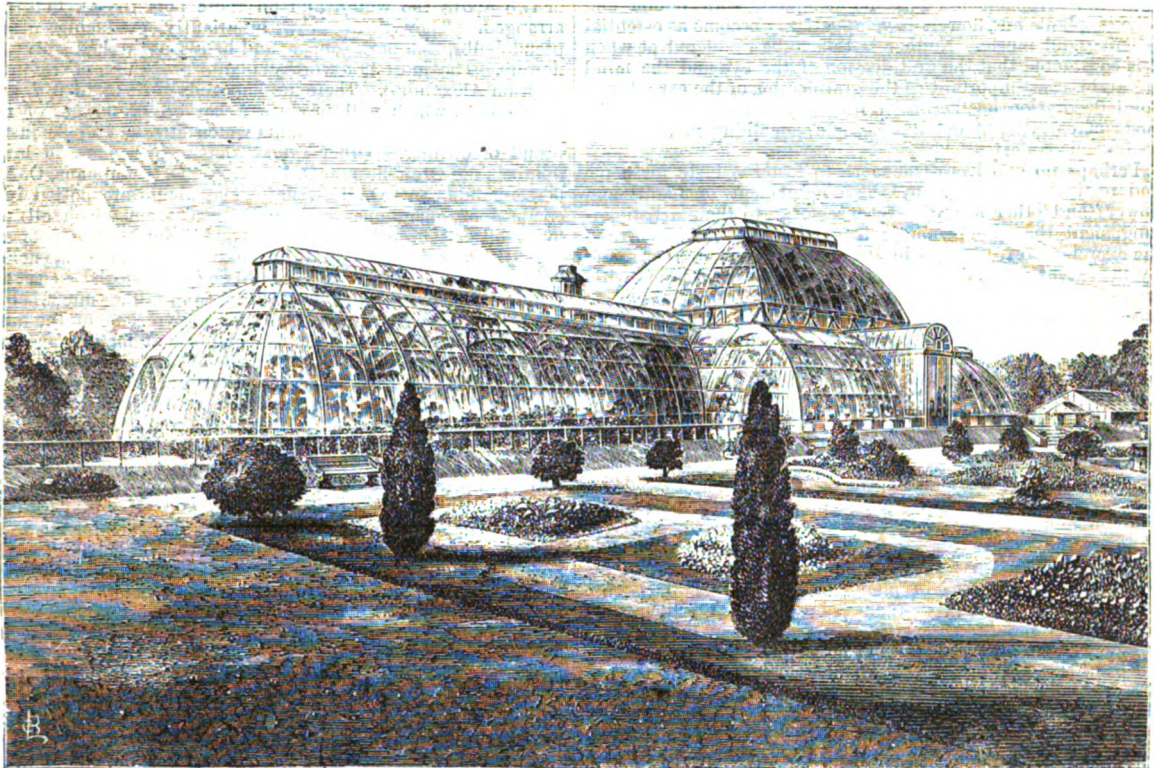


Fig. 39.—THE PALM HOUSE.

able to obtain authentic and official information on points connected with the founding of new colonies. It would afford the plants there required without its being necessary as now to apply to the officers of private establishments for advice and assistance.

"The limit of the garden not being exactly defined where it met the precincts of the residence of the King of Hanover, permission was obtained to include within the botanic garden all the ground immediately about the conservatory and orangery, which greatly enhanced the beauty of the view and added between 3 and 4 acres. Soon after application was made to the Queen for a grant of land from the contiguous pleasure ground, which might afford the means of forming a pinetum (or a collection of plants of the Pine tribe) and of erecting a Palm stove or tropical house worthy of the place and the nation. Her Majesty was graciously pleased to permit a portion of the pleasure ground, comprising about 47 acres and including a piece of water, to be devoted to these purposes, and enclosed within a light wire fence, which now separates the botanic gardens from the pleasure ground.

"Again in the winter of 1846-7 orders were received for abolishing the royal kitchen and forcing gardens of Kew as such, and incorporating them with the botanic garden, thus adding 15 more acres to the scientific portion of the grounds (75 acres in all)."

Such is an outline history of the national garden of which the accompanying figure affords a familiar and characteristic representation. It is a noble garden replete with instruction, and it is also attractive and popular. The broad sweeping lawns, the fine trees, the shaded walks, the unique collections of plants and the flowers, combine to render it singularly enjoyable by the increasing thousands who visit it annually during the summer months. The great Palm house is an imposing structure and contains grand examples of tropical vegetation. The structure, which was completed in 1848, is 362 feet long, 100 feet wide in the centre, and 66 feet high; the wings being 50 feet wide and 30 feet high. The temperate house is still larger, and contains many grand specimens of Antipodean trees and Ferns in exuberant health. The houses of Orchids, Aroids, Ferns, Aquatics, &c., are richly stocked, and it is surprising how well the plants look considering the ever-flowing stream of visitors and consequent draughts from open doors to which the plants are exposed.

The grounds during the summer are brightened by flowers, but artistic carpet bedding is not indulged in, that fashionable feature of garden decoration being, and we think wisely, left to the fashionable parks. It would be out of keeping with the stately and diversified beauty of Kew. Of hardy border and rock plants there are excellent collections, which at all seasons of the year yield attraction or instruction, or both.

Considering the variety and quality of the contents of Kew and its many features of interest, there is no wonder that the gardens are popular, and it would be a source of perennial regret if their usefulness, which is the true source of their popularity, should be in any way impaired.

MR. WILLS' NURSERIES AT FULHAM AND ANERLEY.

FROM time to time brief allusions have been made to some speciality in these nurseries, also to some example of floral decoration arranged on a public or private occasion with plants mainly provided either at Fulham or Anerley. Anything like a general notice of the establishment has not, however, appeared in the Journal, and yet few if any nurseries can afford a better idea of the extent of what may be termed domestic floriculture as it is now established in this country.

In the arrangements at festal banquets, both public and private, plants and flowers have apparently become as essential as wines and music. Neither is this to be wondered at when it is considered that the gratification of the eye and the mind are at least as important as the gratification of the ear; hence floral decoration has become a necessity of the times, and the mode of carrying it out has become something more than a profession—an art.

Perhaps no one has done more to foster a taste for home and festival adornment by the employment of plants and flowers and other appropriate accessories to their artistic arrangement than the owner of these nurseries. Mr. Wills, by the exercise of true taste in the arrangements of plants, and by the extent of the decorations that he is daily entrusted with, may be said almost to have created a new industry. Domestic floral embellishment has, it is true, been indulged in for a considerable period, and has been ably carried out by nurserymen as a part of their business, but no one has made it a speciality of such magnitude as the "floral artist" of Onslow Crescent.

Onslow Crescent is the head quarters of Mr. Wills' business, and although glass structures of considerable extent are there provided they are chiefly as receiving houses. There a staff of decorators and bouquetists are continually employed in arranging and dispatching the consignments which arrive from Fulham and Anerley, which are sent not only for the embellishment of royal bouquets and charity dinners in London, but to the mansions of the opulent in various parts of the country. The numbers of plants and flowers employed are extraordinary, the bulk of them being grown at Fulham and Anerley, but it is necessary to supplement them by extensive purchases from other nurseries at home and abroad.

FULHAM.—This nursery is about two miles from Onslow Crescent, and at present is just beyond the brick-and-mortar boundary of the metropolis; but the colossal city is rapidly expanding, and in a few years the nursery instead of being in the country will be in the town. This is evident by the invasion of builders, which is ever in progress, and is apparently irresistible. The nursery is an enclosure of about four acres, a considerable portion of which is occupied by glass structures, the remaining grounds being devoted to flowers and a few vegetables. It may be a matter of surprise that Cabbages, &c., are grown here; but the fact is explainable. Mr. Wills has been a gardener and has a gardener's feelings and sympathies. In the commodious dwelling he offers a home for an octogenarian gardener who honoured the craft by a long life of excellent practice at Denbies. Mr. Drewett here enjoys his well-earned annuity, and amuses himself among the vegetables, thus occupying his time congenially and usefully. He is not an *employé*, but an extra official respected by all in the establishment.

There are about a dozen houses, most of them capacious lofty structures for affording convenience to the large Palms, Camellias, and other plants that are in requisition for decorative purposes. The entire area of glass is 50,000 feet. Perhaps the most interesting house at the present time is that devoted to Orchids. It may be termed a double lean-to, for a lofty wall running east and west has a range of glass on the south side for Orchids requiring heat, and another on the north side for cool Orchids. The southern division is filled with a large stock of fine plants of *Lælia purpurata*, *Phalænopsis Schilleriana*, *amabilis*, *Dendrobiums*, &c. *D. Wardianum* is largely grown. It is one of the most beautiful of Dendrobies, and its ready growth and free-flowering properties render it one of the most valuable for decorative purposes. The plants are mostly grown in

baskets. The house on the north side of the wall contains a remarkable collection of plants. The back wall, which is about 80 feet in length and 12 feet high, will shortly be covered with *Lapageria alba*. The plants were planted-out last year in prepared stations and have made excellent progress. The flowers that will be produced on this shaded north wall cannot fail to be of very great value. It is just the place for growing a supply of what certainly is one of the most charming flowers in cultivation, and if Messrs. Veitch had done nothing more than introduced *Lapageria rosea* and *alba* they would have deserved well of their country. Rough turfy loam and peat, a shaded position (but not overshadowed by other plants), and a cool house are the conditions under which *Lapagerias* flourish. The front of the house is occupied with Orchids. A shallow tank is formed as near to the glass as is convenient, and in the growing season it is kept replenished with water. In the stream are placed inverted flower pots, which rise an inch or two above the water, and on these pots the Orchids are arranged. They there grow luxuriantly, producing grand pseudobulbs, rich dark foliage, and handsome arched spikes of flowers. The most noteworthy plants are those of *Odontoglossum Alexandræ*. There are hundreds of them in 6, 7, and 8-inch pots, which will produce a harvest of flowers of the greatest value. They are plants which anyone may be justly proud of owning. Other *Odontoglossums* grown here in large numbers are *O. cirrhosum*, *O. Pescatorei*, *O. triumphans*, *O. Andersonianum*, and *O. gloriosum*. The plants are potted in a compost of sphagnum, the fibre of peat from which the loose soil has been knocked out, and charcoal. The pots are filled three parts full with drainage, and the compost is packed high above the rims. Fire heat is only employed in severe weather, and to keep the temperature from falling much below 50°. Thus easily and excellently are grown some of the most beautiful and useful of Orchids—plants that may be successfully grown behind the north walls of any private garden where glass shelter, slight heat, and cultural skill are provided. Another low span-roofed house 100 feet in length has on the bed on one side of the central path two thousand plants of the rich and chaste *Lælia anceps*, the other side being occupied with *Gardenias* planted out. Thousands of flowers of great value are provided in this structure. A similar pit is closely packed with small Palms, Begonias, and Harrison's Giant Musk. The last-mentioned plant is in great demand for decorative purposes, and is being increased very largely. Another house of the same dimensions is filled with *Eucharises*, *Spireas*, small *Azaleas*, *Pancratiums fragrans* and *speciosum*, and *Stephanotis* on the roof. The *Pancratiums* are found very useful for producing pure white flowers which are always in demand.

A very large and lofty structure is occupied with Oleanders, *Cytisuses*, *Cordylines*, *Camellias*, and other plants of considerable dimensions, the south side of the roof being covered with Tea and Noisette Roses, and the shelves filled with scented Geraniums, Lilies, &c. A similar house represents a forest of *Camellias*; another house of the same size being chiefly occupied with *Azaleas*, containing also *Kalosanthes* and *Callas*. A structure 160 feet long is crowded with *Roses*, *Pelargoniums*, and other plants for affording cut flowers, and another is filled with Palms. Two brick pits of the same length contain five thousand pots of *Lycopodium denticulatum*. This *Lycopodium* cannot be grown fast enough. *Isolepis gracilis* is also in constant demand. Five thousand pots of Lilies are forced, and apparently a greater number of *Spireas* (*Hoteias*). *Panicum variegatum* is also largely grown, as also are *Liliums*. The *Liliums longiflorum* and *auratum* are grown and flowered in 5-inch pots. One bulb is placed in each pot, which is only half filled with soil, and when growth commences the remaining space is filled up with rich manure. This and copious supplies of water enable plants with healthy foliage and fine flowers being produced in such small pots. The pots are plunged in cocoa-nut fibre refuse in beds on the south side of the houses, and the plants are left to grow without any further protection. Many hundreds of the former Lily are now about 6 inches high and have received no injury by frost. On the north sides of the houses bulbs are plunged, such as *Narcissuses*, *Tulips*, and *Hyacinths*. Many of these are grown for affording cut flowers, the bulbs being packed closely together in boxes only about 4 inches deep, and it is surprising to see what fine flowers are produced on this crowding system. Thousands of bulbs are so grown and flowered with little or no protection.

Such is the character of this plant and flower manufactory, from which vanloads of plants are constantly going out and coming in: going out fresh and bright, coming home seedy

or in tatters. Such as are recoverable have a course of hospital treatment and do duty again when in presentable condition; the incurables, and these are many, being thrown away. Notes on the Anerley Nursery are postponed.—VISITOR.

EARLY OPENING OF KEW GARDENS.

JUDGING from the communications from gardeners which have appeared in the gardening papers, it may be fairly taken for granted that the generality of horticulturists throughout the country are satisfied with the hour at which Kew Gardens have hitherto been opened to the public daily. I for one—and I speak both as a gardener and an old Kew *employee* knowing something of the arrangements there—think that the time of opening and other conditions of admitting the public to the gardens are perfectly satisfactory; and I fully believe this is the opinion of the majority of the public, or why should the agitation to open the garden earlier be chiefly confined to a few eating-house keepers about Kew? As a rule the causes for opening the gardens earlier held out by the few writers who have taken the matter up have no real foundation.

First, "The British public" are said to suffer greatly through the garden not being open till one o'clock. It appeared strange to me, and I have no doubt it would to others, that most of the original movers for early opening belong to Kew or its immediate vicinity. No doubt it must be highly gratifying to these gentlemen to consider themselves representing the "public," but it is to be hoped the authorities will see it proper to have a more "national" opinion on the matter before they make any alteration in the opening of Kew. That it is for local advantage from beginning to end must be apparent to every reasonable thinking person, and I was heartily glad to see that you did not hesitate to point the matter out in its true light.

At the "public" meeting held at Kew on August 21st, 1877, when it was resolved to procure the opening of Kew Gardens at ten o'clock in the morning, there was another resolution passed which fully verifies the self-interested character of the first resolution. To make matters plain. Going from Kew to Richmond by the public road the gardens are on one side of this road, and villas have been erected on the other side. No doubt whatever this has been done with the object of securing a view into the gardens, which, to anyone who knows how much a good view from a house near a town is valued, simply means an increase of rent. However, these enterprising builders have been disappointed in their "views," as the Kew Garden authorities found it necessary to raise the previously existing wall between the road and the garden; and however much this wall may shelter the tender, rare, and beautiful trees and shrubs with which the garden abounds it matters not, but the wall is objectionable to the "public," and the petition prays that it be removed.

There is another advantage which the people of Kew would derive from the gardens being opened in the forenoon that would have more influence in creating a public demonstration there than any of the reasons you pointed out. Nearly every other house in Kew is an eating house, and the increase of trade which the keepers of these would expect through people visiting Kew before they had lunched or dined fully accounts to me for the enthusiastic manner in which the resolutions were carried at the "public meeting."

Respecting horticulturists and those considering themselves as such, who are clamouring for the early opening of Kew, as might have been expected, Mr. T. Baines, Southgate, is conspicuous. Mr. Baines has my respect as a plant-grower, but I do not admire his opinions on Kew. Mr. Baines is very much shocked at your "insinuations" that those residing in the immediate neighbourhood want the garden open to satisfy their own requirements. Mr. Baines says, "There is unlimited space in the neighbourhood accessible—Richmond Park in particular—where those who only want to lounge about can do so." I am afraid Mr. Baines would not enjoy a lounge in Richmond Park very often if he lived in Kew, because the one is nearly three miles from the other, and walking this distance to and fro is hardly the thing "loungers" appreciate. Mr. Baines' ideas of garden work are also at fault when he asserts that all work necessary to be done in the houses at Kew can be accomplished before breakfast time. Watering is not the only operation that requires doing. Nearly all the plants at Kew are potted in the houses in which they are arranged; indeed, many of them are so large that they could not be removed to another place. But, briefly, it is not correct that

country gardeners, botanists, and such-like are not able to gain admittance, or have a difficulty in gaining an entrance, to Kew Gardens before the gates were opened to the general public at one o'clock. Gardeners, no matter who they are or from whence they come, are as freely admitted to Kew any hour of the day as they are to any nursery in London, and no one need be afraid to ask admittance, because it is always considered more a right than a favour to grant it. The whole amounts to this: Botanists and gardeners can gain admittance to the gardens at any hour of the day simply by stating that they are such, and it is perfectly absurd to pretend that the garden should be opened earlier on their account; but that this place of instruction should be open all hours of the day for the recreation of the masses is what I am sure every right-thinking intelligent gardener and botanist will do their utmost to prevent.—A KITCHEN GARDENER.

NOTES ON VILLA AND SUBURBAN GARDENING.

WHILE we write the ground is covered with snow, and the aspect is a wintry one indeed; but perhaps before these lines appear in print a change to warm and genial weather will have occurred. Anticipating the gentle showers and bright sunshine of April vegetation will soon be active, and the garden will again become an object of interest to the many who find recreation and delight in tending it. As soon as the change to pleasant spring-like weather is manifest the sowing of seeds of hardy and half-hardy annuals must be attended to for raising plants to flower throughout the summer. Perhaps there is no more simple and better way than to sow the seeds thinly where the plants are to remain to bloom, but in a few cases with the more tender plants—such as Ten-week Stocks, French and German Asters, double and single Zinnias, Phlox Drummondii, Petunias, &c.—it would be better to sow on an open warm border, sheltering the seed with handlights or spare garden frame lights whilst the seeds are germinating. Under such protection the young seedlings will flourish and make very sturdy plants for removing to their permanent quarters. Another way is to sow in boxes and place under the protection of a garden frame. Both plans point to the same object. We consider either of these modes better than sowing the seeds, as is too often done, in a very high temperature, in which the seedlings become drawn and weakly and the roots matted together, so that when the plants are planted in their blooming stations they are too weak to recover, and much of their after beauty is sacrificed.

Of the hardy annuals perhaps Mignonette claims the foremost rank, and should be sown in quantities in lines or in circles dotted here and there, making the prominent sowings near to the principal windows of a residence. Cover the seed very slightly with fine soil. There are many new and improved varieties now to be had quite as sweet-scented as the old common variety. Amongst them is Miles' Spiral Mignonette; its sturdy branching habit and powerful fragrance will render it a great favourite when better known. Many of the Everlastings are worthy of more general cultivation, such as Helichrysums and Xeranthemums in variety. They continue in bloom when well grown from the middle of summer until killed by frost, and are indispensable as a winter flower when wired and preserved for that purpose. Many of the Everlastings are also dyed, and are to be purchased in Covent Garden, where they are tastefully made into bouquets and emblematical devices. Rodanthe Manglesii and R. maculata and maculata alba are charming varieties of fine dwarf habit. The African and French Marigolds are very effective, and Tagetes signata pumila is fine for front lines, and has the advantage of flowering late in the summer, at which time its small yellow flowers are very attractive. The Godetias are brilliant and profuse-blooming annuals, and should be found in almost every garden, especially Godetia Lady Albemarle. All the Nemophilas are worthy of cultivation; their small bright flowers render them great favourites, and they are not very particular with regard to soil, and can be employed as bedding plants, for edgings, and on rockwork. Nemophila discoidalis, N. insignis grandiflora, and N. maculata are fine varieties. Dianthus Heddevigi and its many varieties must be included, together with the Larkspurs. Collinsias of all kinds are very beautiful and will add to variety, as also will Virginian Stocks, Limnanthes Douglasii, Clarkias, Eckscholtzias, Love-lies-bleeding, Candytuft, Nasturtiums, and Lupins. For screening-out unsightly objects the tall-growing Nasturtium, Tropaeolum canariense, and Sweet Peas are very suitable. Sunflowers are also welcomed by many, both the double and single varieties; they are well adapted for shrubberies, and in the autumn months are very conspicuous. We have observed, however, that rabbits are very partial to them, and therefore if those animals abound it would be useless attempting to grow Sunflowers. Ornamental Grasses are also very useful, their graceful forms and refreshing colours give a relief to the other occupants of a garden. The Stipa pennata or Feather Grass, Agrostis pulchella, the various Brizas or Quaking Grasses, and Piptatherum Thomasii can be all recommended.

Tender Annuals.—Where a hotbed is at work, or a house with artificial heat can be had, a sowing of Balsams, Cockscombs, and Globe Amaranthuses should be made early in the month, sowing the seed in shallow seed-pans, and subsequently pricking the seedlings off into small pots as soon as large enough to be handled, keeping them near the glass; in fact, it is a rule with all seedlings that ought never to be lost sight of, that the nearer the plants are to the glass the better and more sturdy they become. Chinese Primulas should now be sown, covering the seed very slightly; and where Cannas, Castor-oil Plants, and such-like sub-tropical plants are required, seed of them must be sown and the plants be brought forward in a light structure having a genial temperature, eventually hardening-off the plants for outdoor decoration. Variegated Maize, which contrasts effectively with dark-foliaged plants of stately growth, may be prepared in the same manner. Sow the seeds of all kinds of plants thinly, and promote a steady growth of the seedlings by affording them all the light and air possible, and by raising them in moderately, not violently, heated structures.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Sow Celery for the latest crop; the seed may be sown in a sheltered situation outdoors in rich moderately light soil, or in pans, placing them in a cold frame. Turnip-rooted Celery or Celeriac should now be sown. Its roots are valuable for soups. It requires to be planted on the level or in very slight trenches. Carrots for the main crop should now be sown. James's Intermediate Scarlet and Red Surrey are fine and good keepers. If Beet is required early a moderate sowing of Dewar's Dwarf Red may now be made in rows a foot apart, covering the seed an inch deep. The main crop of Beet, Salsafy, and Scorzonera should have a space of 15 inches distance between the rows, but we do not advise these crops being sown for another fortnight, as when sown early the plants are liable to run to seed. The ground, however, should have a dressing of quicklime, pointing it in with a fork with a view to the destruction of slugs. Sow on a sheltered bordered Sweet Basil, Sweet Marjoram, and Summer Savory. We sow in rows 9 inches apart. In cold localities defer the sowing for another fortnight. Thyme and Sage we sow about this time in rows 1 foot apart. Plantations of culinary herbs as are in request should now be made, such as are increased by division, allowing a distance of from a foot to 18 inches between the rows, and from plant to plant according to the requirements of each. Change of soil is as beneficial to these as to any other description of plant. A moderately warm or sheltered situation should be chosen. Our herbs are grown on an east border. Chervil should now be sown out of doors for a succession to that having stood the winter. The planting of second early Potatoes should now be completed, and the planting of late kinds proceeded with. The distance between the rows for ground in good heart, as most garden soils are, should not be less than 8 feet with from 15 to 18 inches between the sets for strong-growing sorts. Except in special cases late Potatoes should not be grown in gardens, they being much more profitably cultivated under field treatment.

HARDY FRUIT GARDEN.

Grafting should now be completed as soon as possible. This is an operation too much neglected in gardens. It is the readiest means of bringing barren trees into speedy bearing, as well as a desirable mode of introducing new varieties and such approved sorts as are found to do well in the locality. Instead of grubbing-up large trees of inferior varieties, trees that are barren yet healthy, head-back and graft them. Grafting is a very simple operation, and may be performed by any intelligent workman. Take a piece of firm ripe wood, and cut it slantingly from a point about 8 inches from its base on one side, making its slope quite through to the bark on the opposite side of the scion at its base. A slit about 3 inches long should be made in the bark of the stock through to the wood; a piece of wedge-like hard wood should be introduced into the cut between the bark and wood and pressed downwards about 2 inches, and this being withdrawn the graft is thrust-in in its place to the extent of the length of the slanting cut. Two or more grafts may be introduced into an arm, but they should not be so near each other as to separate the bark from the wood between the grafts. The grafts should have two buds clear of the clay. Secure the grafts with a ligature of matting, and cover the whole cuts and crown of the stock with a pigment formed of clay and cow dung, making it quite close about the crown and smooth so as to exclude air. A covering of moss tied over it and sprinkled occasionally will prevent cracking, to which the clay is liable if dry weather ensue. Scarcely a graft will fail provided they have been cut previous to the swelling of the buds and kept in soil so as to retard their growth until the sap is well up in the stock. The protection of fruit blossoms must be carefully attended to whenever the nights are frosty or likely to be so. Those having projecting coping will have found great advantage from it, but for sheltering from such severe driving snow-storms as we experienced some additional screens are necessary.

Glass copings are the best, and when supplemented with canvas in front of the trees the season must be uncommonly severe if the safety of the blossom and fruit are not insured. Recently planted trees should now be cut back to cause them to push shoots at the required distances apart for furnishing the wall or space.

FRUIT HOUSES.

Vines.—Those in the house started early in December are taking the last swell, and, especially if growing in inside borders, should be assisted by a good watering to the border with liquid manure at a temperature of 90°. Maintain atmospheric moisture by damping every available surface of the house three times a day. Do not syringe the Vines, but place liquid manure in the evaporation troughs. Admit air moderately but early, letting the temperature rise steadily to 85° with sun, closing the house at 80°; keep the heat at 70° to 75° by day by artificial means, and 70° to 65° at night. Black Hamburgs started about New-year's day are thinned and swelling fast. Water the border copiously with tepid liquid manure, not in dribblets, but giving sufficient to reach the drainage. A suitable temperature is 65° at night, 5° less in cold mornings, 70° by day, admitting a little air at that, and then increasing to 80° or 85° with sun and increased ventilation, closing at 80°, damping the house well at that time, and keeping the evaporation troughs supplied with liquid manure. Muscats started early in the year have set well; they should not be thinned until the berries are swelling freely, whereas Hamburgs should be thinned immediately the berries are formed. When Muscats are coming into flower the night temperature is maintained at 75° to 70° with a moderate circulation of air, damping then taking the place of syringing. When in flower we gently tap the stem of each bunch with the finger to disperse the pollen, and in the case of shy setters we go over them with a rather large camel's-hair brush. If pollen be deficient hold a sheet of paper beneath those bunches that have plenty whilst the bunches are being tapped, and the brush may be filled with the pollen and applied to those that are deficient. Attend to disbudding, tying, and stopping in the succession houses, thinning the bunches, removing all duplicates and imperfectly formed bunches, having the eye fixed more on quality and finish than a great crop of fruit, which is seldom satisfactory in the end. Late Vines recently started will in dull weather need artificial heat to keep them advancing, 65° by day by artificial means, 55° at night after the eyes break, increasing to 60° by the time they are in leaf and the fruit showing, 70° to 75° by day, admitting a little air at 70°, closing at 75°, damping the house at the same time and syringing overhead morning and afternoon. Any canes or rods not breaking regularly depress to the horizontal, or their ends below that until the eyes have started, then tie the rods to the trellis. Fermenting materials will have been removed from vineries that were started early, the Grapes of which will be colouring. A thorough soaking of liquid manure applied to the roots, mulching the soil with short manure, preferably recent horse droppings, which evolve ammonia, and checks red spider and also prevents evaporation from the border. Fermenting material on the outside borders of those started early must not be removed until the fruit is thoroughly ripened. Vines in pots swelling-off the fruit feed liberally with liquid manure.

Peaches and Nectarines.—We do not, as a rule, syringe the trees twice a day after the fruit is set and swelling, having proved that such practice is not a preventive of red spider; yet we syringe the foliage forcibly occasionally to keep it in check. Deficiency of moisture at the roots with a dry atmosphere promotes red spider, but this season we have not had the faintest trace of the enemy, having in addition to the usual top-dressing of manure and turfy loam applied bone dust and chemical manure (Amies'), washing the fertilisers in thoroughly. The evaporation troughs are kept full, and the house is damped three times a day. In the earliest house the stoning process will soon be over, but we make sure that it is complete by trial with a knife of the backwardest fruit before raising the temperature; 70° at night, 75° by day from fire heat, advancing to 85° or 90° from sun heat are suitable after stoning. Give a thorough watering to the border, the water being a few degrees higher in temperature than the mean of the house, and mulch the inside borders with short manure. Syringe twice a day, and damp at noon, and again at closing time in bright weather. Some varieties of Peach are subject to mildew, which yields to flowers of sulphur. Aphis upon its first appearance must be met promptly by fumigation; but be very careful, as the foliage of the Peach is tender. Keep the shoots well tied-in as they advance, and be careful not to overcrowd them. The foliage requires air and light for the maturation of the buds at its base, and the fruit requires sun for colouring perfectly. Attend to disbudding and thinning the fruit in the succession houses. Our latest forced house has set its fruit very thickly, as have all those preceding it, and requires frequent looking over for the reduction of their number, for thinning, like disbudding, requires to be done gradually, removing a few shoots at a time and a few of the smallest fruit daily. The trees in cool houses, which correspond to orchard houses, are in fine bloom; ventilate very freely, and go over the blossom with the brush on fine days, and see that the borders do not want for

moisture. Avoid a close confined moist atmosphere, especially in the case of unheated houses, for the blossoms are acted on by cold in proportion to the moisture, a low night temperature doing no harm provided the house be dry, but the means of excluding frost should not be wanting. In cold districts fire heat may in a dull period be necessary to secure a good set of fruit. Turn the heat on in the morning, admit air at 50° in addition to the little left on all night, which should be the maximum by artificial means. Shut off the heat at closing time, and the heat given off by the heated surface will be sufficient to exclude frost for the night.

Melons.—Give the plants a good watering when the fruit is set and of the size of a walnut, and earth-up the plants if not already done, ramming the soil firmly. Those plants already earthed and swelling off their crop may have an application of liquid manure, but it must be weak and be kept from the neck or collar of the plants, or it may induce canker, which, however, may be overcome by placing earth all around the stem after rubbing the cankered part dry with the lime. Remove all flowers, male and female, from plants the fruit of which is swelling freely, attending to stopping, thinning, and tying the shoots, which must not be allowed to crowd the principal foliage. Admit air early, then allow the temperature to rise gradually to 90° with sun, 75° to 70° by day from fire heat, 70° to 65° at night, bottom heat 85°. Syringe twice a day in bright weather, damping only in dull weather. Train the growths of successional plants. If the laterals are crowded remove every other when quite young as soon as visible, adding more soil to the sides of the ridges or hillocks as the roots protrude through the surface, stopping the shoots one joint beyond the fruit, or rather blossom, which should be impregnated in bright weather. A sowing should now be made for affording plants for frames which have been employed for early Potatoes, &c.

Cucumbers.—Keep an eye to red spider; syringing twice a day will keep it at bay provided every portion of the leaves is thoroughly wetted. Remove all damaged or old leaves, stop the shoots one joint beyond the fruit, thin out where likely to be too crowded, and avoid overcropping by early attention to the removal of superfluous fruit. Keep the evaporation troughs filled with liquid manure, admitting air early, increasing it with the increase of solar heat, avoiding cold draughts. Liquid manure will be required by plants in bearing, adding more soil to the ridges of advancing plants. Attend to the lining of the beds of frame plants, covering the glass at night with mats, &c. Day temperature 75° up to 90° with sun, night 70°; bottom heat 80° in frames, 85° in houses.

PLANT HOUSES.

Stove.—*Pancretrium caribæum*, fragrans, and ovatum have elegant white sweet-scented flowers, and the plants are of easy culture. They should be in every collection. They do well in rather strong turfy loam, and require abundance of water when growing. In potting these plants, also *Eucharis*, the bulbs should be entirely buried in the soil and a good space be left for watering. Old plants of winter-flowering *Begonias* should be renewed annually. Cuttings should now be inserted; they strike readily in gentle heat. Select cuttings of the strong growths and insert them singly in small pots. When well rooted transfer to 5-inch, and from those to 7, 8, or 9-inch pots, according as the plants are wanted medium-sized or large. To have them flower well they should have a light airy situation and be kept moderately moist. *B. fuchsoides*, *hybrida multiflora*, *insignis*, *Ingrami*, *semperflorens*, *Saundersi*, and *manicata* are good. *Plumbago coccinea superba* has fine scarlet flowers; cuttings of 4 to 6 inches in length, taken off with a heel, potted singly in loam and leaf soil, strike in moist gentle heat. It, as also *P. rosea*, are spoiled by growing in too strong heat. They should have a light airy position after being well rooted in an intermediate house, keeping moist. *Centradenia rosea* and *C. floribunda* cuttings struck now in sandy soil and grown on through the summer make fine winter-flowering plants, flowering from nearly every leaf. Early-flowered plants of *Franciscia* will have shoots available for cuttings of 4 to 6 inches in length, which with a heel root in a brisk heat in sand; they should when rooted be potted off in loam with a little leaf soil and be grown on through the summer. *F. calycina major* and *F. confertiflora* are the best. *Luculia gratissima* cuttings struck now and grown through the summer will flower in autumn, and from their moderate size are very serviceable. Cuttings should also be inserted of *Thyracanthus rutilans*, *Eranthemum pulchellum*, *Centropogon Lucyanus*, *Conoclinium ianthinum*, all of which are worth growing in quantity. *Æschynanthus splendidus*, *Lobbianum*, and *grandiflorus* are fine basket plants or for pots. A dozen cuttings placed around a 6-inch pot now in sandy loam and peat strike readily in gentle heat; when well rooted transfer them to the baskets, or shift into 8 or 9-inch pots. *Poinsettias* should after they have rested a time have water and be placed in a growing temperature, shortening back to about 6 inches from the soil those intended to be grown on, and those for affording cuttings shortened to firm wood. When they have made a little growth reduce the ball, return to the same size of pot, employing good loam. They cannot have too light a position, but too much heat draws them up weak. A temperature of 60° at night is sufficient for them. Look well after mealy bug and other insect pests, syringing in the

morning and afternoon, keeping the evaporation troughs filled with water and damping the house at noon. Avoid overwatering, but as the heat is greater more liberal supplies of water will be required, yet the soil is often made sodden by needless watering, which is worse than moderate dryness. Temperature 70° to 65° at night, 75° by day from fire heat, at which admit a little air, increasing it with the temperature to 85° from sun heat, closing at 80°. Have shading in readiness, but use it only in bright weather.

TRADE CATALOGUE RECEIVED.

William Paul & Son, Waltham Cross, Herts.—*Spring Catalogue of New Roses, Geraniums, Phloxes, &c.*

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense. Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

BOOKS (Graw).—The book you mention is very good, and so is Sinclair's "Hortus Gramineus Woburnensis."

HORTICULTURAL (ROYAL) SOCIETY'S SCHEDULE (L. G.).—Write to the Secretary at South Kensington.

GARDENERS' PROVIDENT SOCIETY (W. T.).—The address of the Secretary is Mr. J. F. McElroy, Moray Lodge, Campden Hill, Kensington, London.

OUT-GOING TENANT (R. P. P.).—Legally you can neither remove the tree nor the edging tiles you put in at your own expense. Why not agree with the landlord first?

RIBBON BORDER ARRANGEMENTS (A Constant Reader).—In the first border discard the yellow *Calceolaria*, and repeat the *Centaurea* in its place. You will then have pale yellow, blue, grey, crimson, grey, scarlet; and your very capital mixture of Dahlias, Lilies, Gladioluses, Phloxes, and Delphiniums, mingled with shrubs behind. In the second border retain the yellow *Calceolaria*, and substitute Purple King *Verbena* for the scarlet *Geranium*.

ARRANGEMENT OF FLOWER GARDEN (W. T. C.).—The proposed mode of planting the beds is very good. This applies to both of the plans sent to us. We do not see how the plants named could be arranged to produce a better effect; the bright colours are well balanced and associated with neutral tints, which will produce a quiet yet cheerful display. We should adopt the plan for which the raising of plants would be the most convenient.

FLOWER BED ARRANGEMENTS (A. Y. M. Bott).—Diamonds and half diamonds make a pretty design for a border. Mark the outlines with a compact-growing plant with variegated foliage, plant each diamond with one distinct colour, and let them alternate harmoniously something in this way: Pink, grey, or white; purple, crimson, yellow; and in the half diamonds have such plants as Golden *Pyrethrum*, *Lobelia*, *Alternanthera*, and *Cerastium*. In the group of beds on the lawn plant the central bed entirely with *Zinnias*, and have your *Geraniums* in the outer beds, a distinct sort in each bed.

CULTURE OF ROSES IN POTS (Idem).—Keep your Roses under glass till the weather becomes warm, say the third week in May, then plunge them to the rim of the pots in a bed of coal ashes in an open sunny position. Keep down weeds, and give occasional doses of liquid manure to assist the growth, the progress of which will be your best guide as to the frequent use of stimulants or otherwise. Early in October thin-out the growth and prune to about four eyes, turn each plant carefully out of the pot, examine and put right any defect in the drainage, repot in the same pots, or use a size larger for any very strong plants, but do not shake much of the soil off when the roots appear healthy, strong, and abundant. When, however, it is at all sour, and the roots are not in good condition, shake off the whole of the soil, and repot in a mixture of turfy loam and old decayed dung. They may then be placed in a pit or cool frame, and taken into the greenhouse at the end of the year. Your object in growing Roses in pots is to obtain bloom before it can be had in the open air, and it is better, therefore, to devote your plants specially to this purpose, and not attempt the production of a second crop of flowers in the same season.

ROSE SHOOTS DESTROYED BY FROST (E. C. Burton).—Wait till genial weather induces fresh growth, which will spring from the base of the frozen shoots, and then cut away any dead shoots down to the new growth. The Wallflower is Golden Queen.

SELLING ROSES (P. H. G.).—We know of no purchasers except the dealers in Covent Garden Market, and among these you must inquire.

DUCHESS OF EDINBURGH TEA ROSE (A Lover of Roses).—This Rose was sent out by Messrs. Veitch & Son in 1874, and received a first-class certificate from the Royal Horticultural Society on the 13th of May of that year. It is a very pretty free-blooming variety with deep rosy crimson flowers of good shape, and excellent for buttonholes or bouquets. It resembles a China Rose as much as a Tea. It is highly suitable for early forcing, and would doubtless prove a first-class Rose for beds. A Hybrid Perpetual Rose of the same name was sent out in the same year by Mr. Bennett of Stapleford.

EVERGREEN CREEPER FOR A VERANDAH (J. T.).—*Berberidopsis corallina* is a fast-growing climber, with persistent, stout, deep-green foliage and crimson flowers. If the situation is bleak and cold it would be better to choose the *Pyracantha* or *Escallonia macrantha*, which are quite hardy in cold exposed positions and very ornamental, but not quite so rapid in growth as the *Berberidopsis*. You neither state your locality nor the aspect of your verandah, which renders it difficult to answer your question.

VIOLETS (A Country Vicar).—We believe the wild white Violet to be much more prolific than the blue one, at any rate that happens to be the case in

the neighbourhood in which we reside. Flowers of an intermediate shade doubtless arise from the distribution of the pollen by insects.

AUCUBA POLLEN.—A Ghent nurseryman asks where he can procure it. We shall be obliged by an answer.

BURNHAM BEECHES (J. B.).—Tradition says that the Burnham Beeches were pollarded more than eight hundred years ago—namely, in the reign of Canute. We have no notes of historical events connected with them.

REMOVAL OF FRUIT TREES AT MIDSUMMER (W. B. T.).—Turn the fact of paraffin oil being sold near you to account by purchasing some of the empty casks; they are inexpensive. Cut them asunder, making a couple of tubs of each cask. Bore some holes with an auger in the bottom of each, lift your trees immediately, and plant one in each tub in some of your best garden soil; secure them with wire to the edges of the tubs, attend well to watering, and you may take them from one end of England to the other at midsummer. Try and turn them out of the tubs as early as possible in autumn, or, better still, if after the removal you can continue to break away the sides and bottoms of the tubs at midsummer without disturbance of the balls of soil, you might secure some growth this year and a fair crop of fruit in the next. The Roses might be treated in a similar manner, placing three or four in each tub. The Geraniums may remain in the pots, and will only require due attention to the necessary watering.

VINE AIR ROOTS (H.).—They are caused by vigorous root-action and the extreme moisture of the heated air.

PLANTING VINES (J. B.).—The Vines should not be planted nearer to each other than 3 feet 6 inches. No Vine is so certain and so serviceable as the Black Hamburg. If you want an early white variety plant Buckland Sweetwater. As a later amber-coloured Grape none equals Muscat of Alexandria, and for this you would have sufficient heat in your No. 2 house. If you want variety you might also plant in the same house Madresfield Court, Black Alicante, and Lady Downe's Seedling. Black Alicante is large, late, and free; Lady Downe's later, smaller, and of better quality. You give us no data as to your particular requirements. If you simply want Grapes of the greatest usefulness and the best quality plant No. 1 house with Black Hamburgs, and No. 2 with Muscat of Alexandrias. The site for the Vine border must in the first place be well drained—there must be no stagnant water. If the position is low and wet make the border nearly or quite above the level of the ground. The best soil for Vines is the top spit or paring from a fertile pasture, mixing half a bushel of crushed bones to each cart-load of soil; but ordinary garden soil made fertile by the addition of bones and soot will grow good Grapes if the surface of the border is heavily mulched with manure. The border should not be less than 2 feet deep. We should make the soil good both inside and outside of the house, plant the Vines inside, and make openings in the wall for the roots to pass through into the outside border. You should procure the Vines at once before the buds swell. Keep them in the pots until they have made shoots an inch or two long, then shake all the soil from the roots and spread them straight and regularly in the soil, cover them 4 inches deep, and water with warm water, the work to be done expeditiously yet carefully.

CUCUMBERS FAILING (Y. J. M.).—We think your plants had neither sufficient support at the root nor air admitted soon enough in the morning. Even although you adopted the good plan of leaving a little air on all night by propping up the lights about half an inch, still in the bright sultry weather of summer additional ventilation is required long before 7.30 A.M. As soon as the sun has raised the temperature of the frame 5° additional ventilation is necessary. This may occur at 6 A.M. if the frames are exposed to the morning sun. Suppose the night temperature of the frame is 60°—i.e., that the thermometer denotes that figure before the sun reaches the frames in the morning, as soon as it rises to 65° more air should be given, increasing it at every 5° increase of temperature, and not permitting it to exceed 85°, the thermometer in the frame being effectually shaded from the sun's rays. As soon as the thermometer commences sinking in the afternoon reduce the air, keeping up the temperature to 80° as long as possible, closing the lights entirely when you are sure the heat will not exceed 85°. Water copiously at closing time. During sultry weather when the plants are in full bearing quite four gallons of water will be necessary for each light 6 feet by 3; but the quantity must be determined by the condition of the plants and the weather. If the foliage is light in colour during the fruiting period apply liquid manure twice a week. Sprinkle the foliage and every part of the frame well at closing time, and an hour or two afterwards prop-up the lights half an inch for the night. Plant on hillocks, and add fresh soil as the roots protrude through the surface, applying it 2 or 3 inches thick at a time, until the soil is level all over the frame. If you adopt this practice, and your soil and the variety are good and you do not allow the growth to be overcrowded, you will have plenty of Cucumbers in due time.

PEAS FOR AUGUST (Amateur).—Peas sown the first week in May would be ready for table by the end of July. To make sure of a supply of Fillbasket in the middle of August we should make two sowings, the first about the 8th of May, and the second about the 18th.

PRUNING ROSES (B. D.).—If your Roses have passed the late severe weather unharmed allow the shoots to remain, for on closer observation you will find the flower buds already forming. Marsechal Neil requires but very little pruning at any season.

NAME OF PLANT (Lady C.).—*Anacharis alsinastrium*.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

FIELD CULTURE OF CARROTS.

THREE varieties of carrots are adapted for field culture, and produce excellent food for cattle, sheep, pigs, and horses. The white Belgian stands first in our estimation for use on the farm. The Red Intermediate and Long Altringham are, however, grown to some extent when there is a probability of the crop being required for sale in the towns as food for the people: upon some soils carrots produce profitable crops for that purpose.

the Intermediate being the best, and the roots are taken up from the ground at the least expense. We will first consider the cultivation of the white Belgian carrot for consumption on the home farm. Sand and sandy loam we have always found best for this crop; but we have seen fine and valuable produce on gravelly and strong soils where cultivated with care and judiciously treated during growth. Light chalk and very tenacious clays and marls are not suitable, and it is hopeless to attempt carrot culture on those soils. Carrots have not yet been grown so generally in the field as they deserve, and as we at one time thought they would be. They certainly require much hand labour at certain periods of their growth; it is, therefore, fair to infer that in some districts the difficulty of obtaining sufficient men or women to do the work has prevented the extension of their culture. We will now endeavour to show how much the labour attending their growth may be curtailed. It used to be the practice to sow the seed in the early part of March, but we prefer to delay the seed time until the end of April or early in May, at which time the young plants start fair with the weeds, and in consequence one hand-hoeing at least is saved. Ridge or baulk culture also saves much labour, as the land can be horse-hoed between the ridges before the young plants are strong enough to be hand-hoed; and upon shallow soils, when the land is formed into ridges at about 20 inches apart, it gives the plant a greater depth of soil to root in, and also facilitates the cleaning of the land at all stages of the growth of the crop. Another advantage in delaying the seed time as above stated is that it gives six weeks more time to prepare and clean the land, which is of great consequence in an adverse season, particularly on sandy soils, which are subject to the white-rooted couch grass.

In tilling the land for Carrots it is a question of soil, for where sandy it usually requires but little tillage; but the heavier soils will necessitate an autumn fallow, and then, after being exposed to the changes of weather during winter, we have obtained upon some parts of our land very good carrots; for although the roots have grown more out of ground, yet they have proved a heavy and valuable produce. We have always considered that the roots grown on strong heavy loams have a higher feeding value than the produce of the sandy and lighter soils. Carrots must be considered as a valuable alternation with other root crops, and in those cases where Swedish and common turnips have been cultivated for a series of years, both mangold and carrots offer an excellent change in root cultivation. Many years ago, after cultivating Swedish turnips without a change, we found under our system of very high manuring that the roots would not keep for feeding on the land after the month of November, and in consequence we resorted to the growth of carrots, which was a great success, and enabled us to make better sheep and cattle than we had ever turned out before. In consequence we made the carrot crop the principal substitute for other root crops, except mangold, for a number of years, and we have not hesitated when occasion required to grow this crop successively on the same land and with more advantage than with other root crops. The tillage for carrots should be the finest possible, extended to the greatest depth practicable, and the land made entirely free from grass and weeds. When the carrots have been sown after a fallow crop, such as rye, trifolium, or stubble turnips, we prefer one ploughing only, because there is but little time to do more tillage; and the loss of moisture in some seasons is a serious drawback; and where the land is made fine after a fallow crop we have grown good and weighty crops. When carrots are to follow a wheat or barley crop it is well to carry out a course of tillage after harvest by ploughing the land as deep as the furrow can be turned, the subsoil plough following, stirring the land to a good depth, then harrowing and rolling it until quite fine. If the season permit plough and subsoil as before, crossways, and allow it to remain in that state during the winter until the month of March, then harrow down fine and as level as possible, and as soon as the weeds make their appearance destroy them by the

scarifier and harrows a day or two before the time appointed for seeding. In case of the crop following that of wheat it often happens that the land is partially infested with couch grass and root weeds, which should be destroyed by the use of the scarifier, and removed or burnt previous to the commencement of the above-named course of tillage.

In all soils congenial to the growth of carrots, where a liberal course of cultivation has been pursued for some years previously, we do not find the carrot crop requires any manure, a large and heavy produce being almost certain; yet we have found it advantageous to drill with the seed about 2 cwt. of bone superphosphate per acre with a few ashes for the purpose of forwarding the young plants earlier to the hoe and in advance of the weeds. We cannot advise the use of farmyard dung for this crop, but in case of land being out of cultivation, or not well suited for the crop, we would apply some artificial manure. We think that Peruvian guano is best, and applied broadcast previous to the last ploughing, as we have found when harrowed-in on the surface it encourages the growth of weeds, and causes the carrot plant to throw out an unusual number of small surface roots, which are detrimental to its most profitable growth.

The seed should be quite new, and the quantity required is about 7 lbs. per acre, which should be hand-rubbed and entirely free from the burr, which is done with leather harvest gloves. It may then be drilled with great regularity; and we consider this is much to be preferred to the plan of mixing the seed with ashes. In some cases where mangold wurtzel seed is drilled on bank or ridges we have found it answer a good purpose to drill carrots on every other ridge, thus growing a double crop, and it is found that the mangolds are benefited by having more space; in fact, it is often the case that a full crop of mangolds is obtained with eight or ten tons of carrots per acre extra produce. Upon all well tilled soils adapted to carrot culture we have found the best mode is to drill upon the flat at 14 or 16 inches apart; for although the horse hoe cannot be so readily used at this distance, the hand hoe will be effectual, because the foliage soon meets across the space between the drills, and permanently checks the growth of weeds during the remainder of the season. The flat hoeing should be commenced between the rows as soon as the lines can be distinctly seen, and after the plants have attained the height of 5 or 6 inches we use a 4-inch hand hoe, and cut them out into little bunches 4 inches apart. Women or boys follow and single out the bunches, leaving the strongest plants. Only one more hoeing will then be necessary if the season has been favourable. A few tall weeds may arise during the summer, which, with the plants that may have run up to seed, should be hand-pulled.

Our experience tells us that there is only one enemy to be feared in cultivating carrots, and by which we have sometimes lost our crop. It is a brown grub which eats off the root just under ground, and they attack the plant just after being set out by the hoe. To meet this contingency we have found it advantageous to defer thinning the plants as long as possible, say for a fortnight after they have been hoed across the drills; they then get strong enough to hand-pull, and large enough to pay for the labour. We have often pulled eight or nine tons per acre, and carried the produce away for feeding cattle, pigs, &c., without injury to the main crop. When the pulling of the plants takes place it opens and loosens the ground round the remaining plants, and they swell very large in consequence. We have often grown twenty-five tons of roots per acre after having pulled and used the thinnings.

The usual time of taking-up and storing the crop is during the months of October and early part of November; but in case of growing them to any considerable extent it will answer the purpose to commence somewhat earlier; for although the roots may be in a growing state, yet such is the value of the greens whilst in full growth, that a portion of the root might be sacrificed in order that a heavy crop of greens may be used for feeding at an earlier period. We have often secured eight tons of greens in this way for the daily feeding of cattle, both dairy cows and fattening bullocks at the stalls. Lifting the crop should be performed with a strong steel five-grained prong inserted at the side of the plant, and by pressing the prong obliquely with one hand, and pulling the greens of the plant perpendicularly with the other, the roots are lifted without breaking-off under ground, which, without due care, they are liable to do. Storing the roots must in a great measure depend upon the use to be made of them. When required for horses, cattle, pigs, &c., they may be well kept by placing in a continuous heap, about 4 feet wide at bottom, carried up to a point, and thatched with straw, fern, or seaweed, and having a light covering of earth; for although frost will not rot them like mangolds or potatoes, yet they lose a portion of their nutrition after being frozen. When required for sheep in open field feeding the best plan is to pit them upon the land by making small heaps, covering them with earth only. Hares and rabbits are so fond of this root that they will come for miles to eat them, and great depredation would be committed if not covered with earth.

We have found that carrots are cultivated at no more cost than Swedish turnips, and are certainly more valuable for feeding.

Our experience on this point is confirmed by the analysis as given by Dr. Voelcker. In conclusion it cannot be doubted that after paying for deep tillage and clean cultivation this crop is entitled to be considered superior to most other root crops. The circumstance of being able to feed or fatten all the live stock of the farm, including poultry, with a crop which requires only a limited outlay for manure, is at once peculiar and decisive, and is calculated to excite some degree of wonder that its cultivation has not been more extended.

WORK ON THE HOME FARM.

The horses will be still engaged in tillage work connected with planting potatoes, sowing of oats, sowing of barley, and also of summer vetches. As soon as these matters are disposed of every opportunity should be taken to forward the land for the early root crops, such as carrots and mangold. This may be done when showers stop the seeding of Lent corn, for it often happens in showery weather that the ploughing of land for root crops may be done when other work connected with the seed time is at a standstill. Rolling of grass land is still the work for the period, and should not longer be delayed. This work also may be done after rain with advantage. It is also very desirable that manures required should now be purchased and placed in a manure house having a dry stone floor, so that the breaking and preparing of guano may be effected, and the different artificial manures may be kept dry, and where they may be mixed and bagged ready for use when required. It is important that in case manure is put away for use and required to be sown by hand broadcast that it should be understood as so many bushels per acre, as the seedsmen know little about cwt.; but in case the manures mixed with ashes, &c., are reduced to bushels they immediately understand how to sow the correct quantity, because with all men accustomed to sow corn as so many bushels they can readily measure the quantity by their hand. The odd horse, certainly one of the most useful on the farm if judiciously employed, will now as ever be required to carry out work connected with the decent appearance of the farmstead, rickyard, &c. Upon properties where there are often woodlands, plantations, beather, and gorse lands, as straw is now so dear and so requisite on the home farm its substitutes should be carefully collected and preserved, such as ferns and leaves of trees of last year's growth lying about in abundance, and only requiring women or boys to rake together and be carried to the farm and used instead of straw in the cow stalls and pigsties to the advantage of the manure supply. At this time of year the hand labour will be required in collecting couch and weeds on the fallows where tillage is going on. Women also will now be required to pick up stones on the pastures and fields in clover, &c., and also in cutting the earliest docks and other deep-rooted weeds as fast as they appear.

The lambing season is in the southern counties nearly completed, but in the midland and northern counties is now going on, and in either case the shepherds have constant and unremitting employment, such as feeding the ewes and lambs with great regularity. Especial care is requisite when changing the stock from one field to another, particularly if the root food differs; we therefore always in removing stock take care in the case of changing from turnips to swedes, or from swedes to mangold, to have some of each kind of food exchanged, so that some of the food be taken from the field where they are leaving and carried to that where they are to enter upon, and the reverse. Within the past few years the labour question has changed so much that we now have as much work on the farm as possible accomplished by piecework. As the root crop is abundant we are now obliged to cut up the swedes and plough them in or lose the season for sowing the barley. We have seen the Lent corn better sometimes after ploughing-in the roots than after feeding off by sheep.

In connection with home farm management we have again had our attention called to the danger of allowing yew trees to be growing in pasture and park lands by the loss of a fine and valuable herd of Highland cattle belonging to the Earl of Lovelace, in consequence of having eaten the cuttings of yew trees. We also know of other losses in our own neighbourhood lately from the same cause. We therefore recommend that all yew trees not required for ornament should be immediately grubbed up in lands frequented by cattle. It is no use to cut them down level with the ground, for the young shoots which spring up are the most dangerous of any. Where, however, the trees are required for appearance in parks they should be well fenced with strong iron cattle hurdles at a distance to entirely prevent the cattle from reaching the branches of the trees; this will not only prevent injury to cattle, but it will not prejudice these ornamental objects, for at a distance the iron hurdles would be comparatively invisible.

MANAGEMENT OF SPRING CHICKENS.

WHILE we write the weather is about as unfavourable for early chickens as it can possibly be. A furious north-easter prevailed and a drifting snowstorm, while a thermometer not far from our own chicken houses has registered nightly about 7° frost for a

week past. We can only trust that ere these lines are in print a genial change may have taken place in the skies. A few weeks ago, when spring seemed to have come indeed, we gave a few hints derived from our own experience about precautions to be taken alike for breeding stock and for newly hatched chickens in this variable season: we proceed to fulfil our promise of supplementing them with some hints on the management of the young stock as they grow.

It is almost needless to say that in this inclement weather the coops should be well sheltered. We do not approve, save in the case of very delicate varieties, of chickens ever being boxed up in houses; but if possible the coops should be so placed that the inmates can run out and enjoy every transient gleam of sunshine, and at the same time be able to escape from the fury of the wind. We always prefer having chickens hatched in a cold fit of weather. They bear it excellently at first, and then when a genial change comes they fully enjoy it; if, on the other hand, they are hatched in an exceptionally warm time, and cold then succeeds while they are delicate with the rapid growth of first feathers, they suffer much from it; consequently when, as so often happens in this climate, winter comes after spring, those which have been hatched in the latter season require special care. Our own have this year been caught by the cold in their most delicate stage and are chiefly not of the most robust kinds, still we have not lost any. We will give our own system for what it is worth. The coops are placed in a row of sheds. These sheds are open towards the south-east and boarded on the other side; their high-pitched roof comes down on the open side to 4 feet from the ground. Each shed has a grass run in front of it 30 feet long and 7 broad, boarded all round 3 feet from the ground. Wet or dry the chickens can always run into these yards; there they get the maximum of sunshine and the minimum of wind, and thrive much better than if coddled up in close sheds. Of course in really fine weather they are let out beyond the yards on to grass or into shrubberies, but the shed yards enable them to have constant exercise with little exposure. Every poultry-keeper cannot have such an arrangement, but many substitutes for it are feasible, such as putting coops under wide eaves of a building or against a banked hedge, or making a temporary lean-to shed against a wall with posts and a sheet of zinc or felt.

Authorities differ as to whether chickens should be taken away from the hen before she would naturally leave them. We never take away a hen till she pecks her chickens. Oftentimes we have sacrificed a batch of eggs from a valuable bird because she returned to brood her chickens at night. When the time at last comes at which maternal affection ceases the question arises where and how are the chickens to sleep at night? This depends somewhat upon the kind kept. The Asiatic breeds, Cochins and Brahmas, do best on the ground altogether if only the coop is placed on really dusty dry soil, or if a house is given up to them with a similar flooring. Dorkings, too, up to ten or twelve weeks old even should live on the ground: where this is not dry it is a good plan to have a little platform of wooden lattice a few inches high, or even a truss of faggots to keep them out of the damp. The lighter varieties, as Bantams, Hamburgs, and Polands, do all the better for perching at once, or even while with the hen before she has left them. We formerly kept Dorkings, like Cochins or Brahmas, on the ground up to four or six months old, but are now convinced that this is not good for their legs and toes. We prefer their perching at ten weeks old or so, and that on perches which they can clasp well with their claws. It is the natural attitude for roosting, and we believe the best.

Then as to food, we continue the diet of boiled or scalded oatmeal made crumbly with other meal. The latter is varied and its quantity gradually increased till very little or no oatmeal proper is given, but ground oats—i.e., the whole oat ground to powder, and barley meal. Kitchen scraps are admirable for at least one meal. Whenever we have seen peculiarly forward chickens we have found that they had much of this fare. Great breeders seem much divided as to the utility of bone meal. Some of the most experienced have told us that they have found it utterly useless, others that they believe it to be invaluable for giving stamina. Our own opinion is that all depends upon the quality of it; we certainly once bought some which apparently caused the death of several young chickens from hardness of crop. We understand that the refuse dust from ivory-turning is sold for crushed bones, and this must certainly be pernicious; but if veritable fresh bones crushed can be obtained our idea is that, mixed in small quantities with the other meal, it is an admirable addition to the fare. At from ten to twelve weeks, according to the time of year, it is necessary to separate the sexes of the larger varieties in which size is a point. We prefer letting cockerels and pullets of the smaller kinds run together; the former mature more quickly, so get their masculine plumage earlier in perfection. It is often a question, where accommodation is small, how to manage this separation. We should advise two yards of moderate dimensions being made, both to open into a larger range, into which the cockerels and pullets may be alternately let out. They should not, however, be able to see each other, or they will fret and pine. In case it is absolutely necessary to shut up the birds of one sex

entirely in a small run we advise that the pullets be so treated. Cockerels require more exercise for the proper development of their limbs, and are apt if much confined to increase in flesh rather than in bone, and so become weakly and even deformed.—C.

PROFIT OF POULTRY KEEPING.

THE experiment began on March 1st, 1877, when I purchased ten hens and a cock of ordinary breed, but carefully chosen for points. By summer two of the hens had to be killed, and out of the chickens five died through accident, leaving the following balance at the end of the year:—

Dr.	£ s. d.	Cr.	£ s. d.
10 Hens and Cock	1 10 8	2 Hens killed	0 5 0
Fowl House	2 0 0	43 Chickens used	5 15 0
Coop, Wages, &c.	0 15 1	1223 Eggs	5 4 6
Food	7 7 2	8 Hens left	0 16 0
		40 Pullets	0 0 0
		Manure and Feathers	0 5 0
Balance	11 12 6		
	£17 5 6		£17 5 6

The first brood was 'spratched' on March 19th, the pullets out of which began laying at the end of and in August.

I began this year with four cockerels and forty-two hens, disposing of one cockerel and six pullets in the middle of February. The eggs laid in January were 465, in February 513, which facts I mention in reference to a paragraph in your issue of March 7th. My first two broods of fifteen and ten were hatched on Valentine's day, while out of sixty-six chickens five have died through accident, and five more broods are expected this week. Last year's pullets weigh up to 8 lbs., the two cockerels 9½ lbs. each. The birds have a first-rate run and all kitchen scraps; beyond, success has depended on care. By selection and crossing the trial is being made of getting hens to lay from 150 to 250 eggs each per annum, as Mr. Wright thinks they may be induced to do. The average weight of the eggs laid I find to be 2½ ozs.—GEORGE BOSTOCK, *Kirkby Wharfe Vicarage*.

THE RED-FACED SPANISH FOWL.

I HAVE been somewhat surprised that we have not had, that I remember, a fair description of the merits of the true red-faced Spanish fowl; probably it arises from the breed being greatly confined to the west of England, but I feel sure that, were their merits more known, they would soon spread.

I have tried most of the breeds for many years, but find none to equal them as hardy layers for profit. The white-faced must have sprung from this breed. They are so much more tender at moulting time, smaller, and so often when highly bred go blind, that I have given them up in favour of the above. The red-faced when true are such enormous layers, never wanting to sit, so hardy, large, and easily reared, that I wish the central poultry societies would give more attention to them as a class. There are three colours of them—white, black and blue, all of equal merit. The male birds should weigh 7 lbs. when nine months old.—A WESTERN SUBSCRIBER.

NOTES ON CANARY BREEDING.

IN reply to a correspondent who had benefited by former advice, and who sought information on the above subject, Mr. Barnesby writes:—It is satisfactory for me to know that your apparently dying Canary has, under the treatment recommended, been restored to health and song. In the way of making a start in bird-breeding I have always made choice of St. Patrick's day. Why I have chosen that particular day I cannot say more than I have thought St. Valentine's day (an old-fashioned day with many) too early to commence Canary breeding, owing to there being less certainty of success with the searching month of March before us.

Canaries at the age of two years are more matured for breeding (especially hens) than yearlings. The hens at the former age are better able to withstand our variable climate in the spring with less fear of their becoming egg-bound, which is a most distressing complaint. At the period of the hens depositing their eggs in their nests they should be freely supplied with fresh green food (dandelion and young lettuce, or salad for choice). If when placing the birds together you perceive that the cock hunts or drives the hen about the cage, do not set it down for a fact they will not pair. A little sparring and hunting about the cage mostly terminates in the warmest affection between the pair. Canaries vary much in temperament, and when two obstinate tempers meet there is often a considerable amount of jarring betwixt the two as to which shall "rule the roost." The cock bird mostly comes off victor, excepting as regards the particular duty appertaining to the nesting duties of the birds' household. Even in some instances the cocks are so dominating that the hens lead a not-over-pleasant life, but this is somewhat exceptional.

Your pair of Canaries, having been acclimatised to the temperature of the room, must by all means be allowed to remain therein, because if removed to the "colder room having a north aspect," they would, just at the time when all hope was centred upon them bringing forth their young broods, be found to be casting their feathers—a very common occurrence when birds are removed from a temperature of some 65° to another 10° colder. When a moult is thus brought about very little hopes remain for success during that particular season.

If you have not already a breeding cage possess yourself with one 24 inches or upwards in length and of moderate height, with hooks or nails in the cage to hang a couple of nest boxes on. Fix the cage in a snug corner of the room, and as the birds are well used to your family you need not fear that the domestic duties of your household will at all militate against them. Canaries readily habituate themselves to the various movements constantly occurring, and if any little household noises occur at times the birds seem to lend their aid in the way of accompaniment. At once place the pair of birds in the cage previously supplied with gravel, seed, and water, and in addition supply them with egg and bun crumbs, and, if after a few days you perceive the cock bird making advances to his mate in the way of chattering and offering to feed her, you may set that matter down as a "positive" that a mutual understanding exists between the two. Supply the birds with moss either placed inside the cage between the wires; or, if you prefer it, hang outside the wires a small net-full of moss and cow-hair, which may be purchased at a London bird-dealer's shop. My plan is to supply the birds with a moderate quantity of moss and fine hay mixed, and when you perceive that the hen has set herself in earnest to deposit the building material in one of the nest boxes, give her in addition a little cow-hair or deer's-hair for the final touch in completing her nest architecture. When the hen has made choice of the boxes remove the other box until the young are a fortnight old, when you may replace it upon the hook for the hen to build her next nest in. If you delay supplying a fresh nest box beyond the fortnight the young birds will soon leave the old nest, and will most likely have their feathers plucked by the hen to line the new nest. When the young have entirely left the old nest burn it and clean the box ready for use.

VARIETIES.

BIRMINGHAM CATTLE AND POULTRY SHOW.—The Committee meet on or about 15th inst. to revise the prize list for the present year, previous to which date Mr. Lythall, the Secretary, will feel obliged if anyone wishing to offer special prizes or to make any suggestions as to alterations will communicate with him.

—THE *American Poultry World* contains the following on rearing ducks:—Whether ducklings be brought out under ducks or hens, the young birds should be kept away from the water until they are three to five weeks old. This looks as if the advice were unnatural, but three-fourths of the young ducks that are lost in early infancy are killed by cramps and chills from allowing them to rush into cold water before the down upon their skin is thick enough to resist these ill effects. Ducks are aquatic, but are not marines! Most persons suppose that they belong to the water as fish do. The wild waterfowl have an oily coat that helps to preserve them, while domesticated ducks lose this under home cultivation.

—**CORN AVERAGES.**—The following is an official statement showing the quantities sold and average price of British corn, imperial measure, as received from the inspectors and officers of excise in the week ended March 30th, 1878:—Wheat, 32,503 qrs. 7 bush., 48s. 9d.; barley, 22,966 qrs. 2 bush., 41s. 5d.; oats, 4606 qrs. 6 bush., 23s. 11d. Comparative statement for the corresponding week in each of the years from 1874 to 1877:—

	Average			Average			Average	
	Qrs. Bus.	s. d.		Qrs. Bus.	s. d.		Qrs. Bus.	s. d.
1874 ..	36,701 5	60 3	..	15,553 6	48 9	..	2810 4	28 2
1875 ..	46,699 6	49 5	..	14,514 3	41 3	..	3272 4	30 3
1876 ..	41,246 1	44 4	..	29,917 2	33 7	..	2657 0	25 2
1877 ..	37,798 6	51 1	..	22,191 1	41 4	..	3142 2	24 6

—OWING to the bad state of the weather there was very little fodder offering at Whitechapel on Monday the 30th ult., and trade was dull. Prime clover, 100s. to 140s.; inferior ditto, 85s. to 95s.; prime meadow hay, 85s. to 100s.; inferior ditto, 70s. to 80s.; and straw, 44s. to 53s. per load.

—EXPERIMENTAL feeding trials, says the *American Cultivator*, have been made between Hereford steers and selected specimens of other pure breeds, which have ended in the uniform result that the former have yielded the best returns to the grazier for the food consumed. Careful breeders claim that the Herefords are the fastest feeders known, particularly on grass. Where a breed is wanted that will furnish good workers, hardiness and great aptitude to fatten, the Herefords display such qualifications to an eminent degree. They are very docile and hardy, being very easy keepers, and will no doubt stand a long severe winter and come out ahead of the Shorthorns in the spring on two-thirds the cost

of keeping. As a fact of great importance to graziers, it has been demonstrated in Australia that the Hereford breed surpasses all others in ability to endure periods of dearth and drought, while it is admitted this breed travels long distances with far less fatigue and loss of flesh than other breeds.

—M. REVEL, of Vic-sur Cère, the author of a prize essay on the milking of cows, states that owing to an unfortunate spirit of rivalry common among young milkers, they often make it a point of honour to try and get their pails filled in the quickest time possible; consequently they only draw from each cow as much of her milk as is given down rapidly and readily, and leave a considerable quantity behind; or, again, in the case of an easy-milking cow, they will drain her to the last drop, and leave nothing for the calf. In this way they may fill their pails rapidly, but the interests of the owner suffer for it ultimately; and he will do well to assure himself from time to time by personal trial that one cow is not left for another till she is fairly milked out.

BAR-FRAMED HIVES AND THEIR MANAGEMENT.

No. 5.

BEFORE I proceed with my subject I must just notice the kindly remarks of your correspondent, "A RENFREWSHIRE BEE-KEEPER," relative to my qualified approval of the permitted swarming of each hive once a year in preference to a too strict adherence to the non-swarming system absolutely in every case. In cases like this there must needs be differences of opinion where the particular practice has differed on which our experience has been founded. I can only say that I wrote in good faith what my forty years' learning in the school of apiculture has taught me; but I have no manner of doubt that your correspondent describes a method of dealing with his hives which, in experienced hands like his, obviates largely the difficulties which I have found in my efforts to manage bees profitably on the non-swarming system, and where time and skill are available I recommend his plan for renovating his queens and hives to the careful attention of your readers. Anyhow he and I are co-operatives in the same field of labour under the influences which are leading to revolutionise our whole system of bee-keeping in the wholesome direction of increased profit and interest.

Having said this I return to my subject as stated at page 198. I asked, "How are we to prevent swarming so as to secure the largest possible harvest of honey?" The main answer is, Give them plenty of room easy of access, and so contrived as to allow the bees opportunity of spreading themselves out at pleasure without inconvenient crowding. An expansible hive would be the *ne plus ultra*—expansible in every direction as the summer advanced, and, of course, capable of as easy contraction in the same ratio when the busy time of year began to decline. Such a hive has yet to be invented, if indeed it be within reach of the possible. A bar-framed hive I fear it cannot be. Failing its discovery there are four methods of supplying partially the want of it, which have been all in use and variously recommended. Mr. Phillips's method of lateral expansion, to which I have recently drawn attention, is a modification of Nutt's system of three boxes collaterally placed, but a great improvement upon it because of the absence of intervening checks to continuous comb-building. I shall not further allude to it here save to express a hope that we shall hear more of it this summer. There have been and are still to be found advocates of enlargement of hive space by nading—that is to say, by enlargement downwards. I cannot say that I have given this method such a trial as to qualify me to speak of its merits. My own experience goes to prove that honey-comb constructed in a chamber beneath the hive is coarse and impure, but I do not profess to have tried any other form of nading than a box placed under the stock, through which the bees were obliged to pass in getting into the open air. Perhaps some of your readers can give us a more favourable report of this mode of increasing hive accommodation. There remains to be noticed that mode of hive enlargement which has found chief favour with apiarians of our own day—namely, expansion upwards. This is done in two ways: first, by an actually contrived sliding case moving upwards on the hive top. A hive of this sort would seem at first sight to meet a great desideratum, as affording opportunity for the gradual increase of space at the honey-gathering season according to the actual needs of the hive by a process of elevation, the super slipping over the hive like the parts of a telescope. It has been in use, I believe, in America and even in this country, but there are obvious practical difficulties in the management of it which would be likely to impede its easy working: hence, perhaps, it is that we have heard so little of it.

There remain to be noticed the various forms of supering hives by boxes or frames in endless modification, of which I need not here speak particularly; these, too, are for the most part common to all methods of bee-management, and are not specialities of bar-framed hives. I will only remark relatively to those that the tendency of improvement in this direction is to discard the use of supers of fixed size, be they great or small, and to employ sectionals—in other words, mere frames more or less slight capable

of holding one or two combs, any number of which can be used simultaneously so as to form one continuous chamber divisible at any moment either for the removal of completed combs or the substitution of empty ones. They have been commented on favourably in this Journal, and are doubtless well known to all who read this paper. I have no doubt they are the supers of the future; let us all make good use of them this year if the sun and the showers are propitious for the coming harvest of honey.

But, as I observed in my last communication, no enlargement of space however well managed will always prevent swarming. We must therefore watch carefully week by week the internal condition of the hive if we wish absolutely to succeed in baffling any such intention on the part of our bees. Nor is this a difficult matter up to a certain point in the case of bar-framists. All that is necessary is now and then to remove the top board or covering and lift the combs out one after the other. The best time for doing this I find to be early in the afternoon or late in the morning when the bees are mostly abroad and are most busy, for then the combs are often comparatively deserted, and they can be handled with the least risk of damage. If any royal cells are formed, whether tenanted or not, they can easily be cut away. Some assistant should be employed that the chief operator may have both his hands free. The necessary inspection can be done, if with dexterity, in a very short time and without any serious interruption to the full activity of the bees.

It will, of course, be obvious that if any royal cells are formed they can be utilised in various ways. To this matter I shall draw attention in a subsequent paper. I have only time now to remark that the check to swarming just detailed has, perhaps, its limit. That limit is the giving of supers. When these are in place and the storage of honey in them has begun in earnest most beekeepers had rather leave their bees alone. Yet even here a periodical examination of the breeding combs is quite possible, for it is comparatively easy in most cases to remove supers temporarily from off a hive. I have often done it myself—less so, perhaps, in the case of sectionals; but here, too, it can be done without much risk or trouble. A practised hand and a brain fertile in resources can do anything with bees.—B. & W.

SWARMING versus NON-SWARMING.—Through some verbal alterations in my remarks under the above heading in last week's Journal my meaning was obscured, in one instance reversed. The expression "which saves time and drone combs being built," was changed into "saving time in construction of drone cells." I am thereby made to recommend expediting the very thing I sought to avoid. Then, again, in my instructions for the formation of artificial swarms the all-important requisite "one frame brood" was omitted, without which the flying bees and their queen would in all probability desert, and the latter be killed on the threshold of the nearest combed hive into which they attempted to find an entrance.—A. RENFREWSHIRE BEE-KEEPER.

OUR LETTER BOX.

BRAHMAS LAME (T. A. J.).—Are your cripples cocks or pullets? If the former they have injured themselves, or have been injured in some way. It may be done by flying from a lofty perch, and thereby bruising the ball of the foot; or the cause may be sometimes found to be that small pieces of window glass have been thrown into the run. Small pointed pieces find their way into the ball of the foot without leaving any mark on the outer skin. This may be true of either sex, but there is a peculiar disorder to which pullets are subject at this time of year, and which may be called lameness. It is that a hen walks about in an upright position like a Penguin, and supports herself on a triangle composed of two legs and her tail. Such a patient should be at once put by herself; she is suffering from some derangement of the egg-producing and laying parts. As a rule these patients recover in a few days. The treatment is to administer purgatives. Where fowls entirely lose the use of their legs it generally arises from an injury to the back, sometimes from cramp. The latter is serious.

MANAGEMENT OF SILVER PHEASANTS (R. D.).—Remove the eggs for every reason. First the hen will lay many more if they are taken away; next, if they are allowed to remain they are often pecked by the birds and afterwards eaten. The safest plan is to put them under hens as fast as you get a sitting. Nine are enough to put under a small hen; eleven, thirteen, or fifteen under a larger one. When she has quite done laying and shows a disposition to sit let her have five eggs; but in that case you must part the cock off. This is easily done by running a hurdle or any other partition across one corner of the pen. Be careful while the hen is laying to supply her with lime, mortar, or chalky rubbish, as the lack of it is often the cause of their eating the shell of the egg already laid. Feed the young like the young of any other Pheasant. When the hen brings off her young remove the cock altogether. As soon as the young are fit to remove from the hen put them in a place by themselves. The old pair may then run together again.

TREATMENT OF WOODLARKS (R. C. M. L.).—Woodlarks should be fed as follows:—Besides German paste give poppy seed, oats, crushed hempseed, unsalted curds, ants' eggs, mealworms, and cooked bullock's heart. In spring supply small green sprouts and watercress, and even the catkins of the hazel tree; in summer all kinds of insects; in autumn poppy and rape-seed, and doddier grass and millet. Larks suffer much from a disorder in their feet, which often become much swollen. When their feet become sore anoint them with almond oil. Keep their feet free from fine threads or hairs, which frequently get twisted around and cut into the joints, and their feet becoming brittle in confinement easily break at the joints. Their legs also become very brittle, and not unfrequently they die from broken

legs. Through being caged up and debarred from their natural exercise and having an abundance of good food, whereby the blood in their system becomes thickish or semi-stagnant, this brings about a very usual malady in Larks—epilepsy. A good and speedy remedy is, when you find the Lark in one of the fits, to immerse it in cold water and cut one of its claws just into the vein so that blood may flow. This will give temporary relief. A drop or two of olive oil internally will be of service. We tell you all we know that will benefit your Lark, but which we fear will eventually die in one of the fits. If you have a spare room let the bird have the use of it to exercise in.

CANARY WITHOUT FEATHERS (Subscriber).—Deficiency of plumage to such an extent as you describe leads us to imagine that it proceeds from a gross state of the bird's system. Most likely your Canary will not entirely recover her feathers until next autumn's moult. If the skin of the bird appears scurfy rub it slightly with oil of almonds. Loss of feathers is often caused through the bird being fed upon a too heated diet and pampered with sugar and pastry. This is a mistake. Canaries should not have lump sugar to peck at. The bird may have a piece of salt instead. If you have been feeding the bird freely upon hempseed and rapeseed, substitute linseed and a few groats occasionally, with lettuce and radish seeds, and just now a free supply of dandelion. Try a cold bath occasionally, and in its drinking vessel keep a rusty nail, and now and then add to the water a little saffron.

FEEDING BEES (Tom Tower).—The hive which you have bought, measuring 18 inches wide and weighing 28 lbs., is very cheap at 25s. Though it does not require feeding, a little good syrup will keep the bees in good spirits and cause them to breed, but the quantity you now give them—an imperial pint per day—is far too much; quite enough for a week given daily in small doses. When the hive becomes full of bees and brood a pint of syrup daily in unfavourable weather will not be too much.—A. P.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain.
	Barom. at 32° at Sea and Level.	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass		
1878. March and April.	Inches.	deg.	deg.	N.W.	deg.	deg.	deg.	deg.	deg.	In- -	
We. 27	29.794	36.7	35.4	N.W.	40.2	50.8	31.1	38.9	24.1	—	
Th. 28	29.550	39.2	37.0	N.	40.7	44.7	30.0	35.5	21.6	0.500	
Fri. 29	29.230	34.2	33.5	N.E.	40.0	38.0	32.4	37.0	31.8	0.120	
Sat. 30	29.241	35.1	33.1	N.W.	38.3	42.3	31.0	34.7	28.3	0.040	
Sun.31	29.498	36.2	33.4	W.S.W.	38.3	45.4	27.9	39.4	30.2	0.160	
Mo. 1	29.142	37.0	34.4	W.	38.9	48.9	27.2	101.9	23.6	—	
Tu. 2	29.264	43.2	39.4	S.W.	39.1	51.6	32.0	35.2	26.5	0.010	
Means	29.284	37.4	35.2		39.4	46.0	30.2	36.4	25.0	0.090	

REMARKS.

27th.—Snowy morning, cleared off at 10 A.M.; bright and sunny the rest of the day.

28th.—Fair, but dull morning; cold dull afternoon, snow showers; snow and sleet in evening.

29th.—Snowy morning till 0.30, afterwards fair, but dull and cold; starlight [night].

30th.—Bright sunny morning, snow showers from 1 P.M. till 2.45, sunshine for about an hour, then cloudy till 4.30, bright sunshine for an hour again; bright starlight night.

31st.—Bright sunny cold morning, cloudy and dull after 10 A.M.; showers in evening.

April 1st.—Bright sunny morning; snow showers in afternoon; fine sunset and evening.

2nd.—Bright and sunny in early morning, overcast at times during rest of the day, slight shower at 1.45, with sunshine at intervals.

A cold week, the nights being on the average colder than in any week this year.—G. J. SYMONS.

COVENT GARDEN MARKET.—APRIL 3.

THERE is very little doing just now in our market, the only alteration worth notice being the arrival of several samples of new Grapes, the general run of which are good for the time of year. Strawberries and Cucumbers are lower, other prices remain the same.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	1	sieve	2	6 to 8	Melons.....	each	0	0 to 0	0
Apricots.....	dozen	0	0	0	Nectarines....	dozen	0	0	0
Chestnuts.....	bushel	10	0	20	Oranges.....	100	3	0	0
Currants.....	1	sieve	0	0	Peaches.....	dozen	0	0	0
Figs.....	dozen	1	0	2	Pears, kitchen	dozen	1	0	3
Filberts.....	1	lb.	0	6	dessert.....	dozen	3	0	12
Cobs.....	1	lb.	0	6	Pine Apples....	1	lb.	1	6
Gooseberries..	1	bushel	0	0	Plums.....	1	sieve	0	0
Grapes, hothouse	1	lb.	8	0	Raspberries....	1	lb.	0	0
Grapes, new....	1	lb.	12	0	Strawberries..	1	lb.	10	0
Lemons.....	1	100	6	0	Walnuts.....	bushel	5	0	8

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	dozen	2	0	4	Mushrooms....	pottle	1	6 to 2	0
Beans, Kidney forced	100	2	0	3	Mustard & Cress	punnet	0	2	0
Bect, Red.....	dozen	1	6	3	Onions.....	bushel	2	6	0
Broccoli.....	bunch	0	9	1	Parsley.....	doz.	0	4	6
Brussels Sprouts	1	sieve	2	6	Parsnips.....	dozen	0	0	0
Cabbages.....	dozen	1	0	2	Potatoes, frame	1	lb.	0	6
Carrots.....	bunch	0	4	6	Potatoes.....	bushel	3	6	2
Capicums.....	1	100	1	6	Kidney.....	bushel	5	0	7
Cauliflowers....	dozen	2	0	4	Radishes.....	doz. bunches	1	0	1
Celery.....	bunch	1	6	2	Rhubarb.....	bunch	0	6	1
Coleworts.....	doz. bunches	2	0	4	Salsafy.....	bundle	0	1	6
Cucumbers.....	each	0	6	1	Scorzoner.....	bundle	1	0	0
Endive.....	dozen	1	0	2	Seakale.....	basket	0	2	0
Fennel.....	bunch	3	0	0	Shallots.....	1	lb.	0	3
Garlic.....	1	lb.	0	6	Spinach.....	bushel	2	6	4
Herbs.....	bunch	0	2	0	Turnips.....	bunch	0	3	0
Lettuce.....	dozen	1	0	2	Veg. Marrows..	each	0	0	4
Leeks.....	bunch	0	2	0					

WEEKLY CALENDAR.

Day of Month	Day of Week	APRIL 11—17, 1878.	Average Temperature near London.			Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.		Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h.	m.	h.	m.	h.	m.	h.	m.	Days.	m.		
11	TH	Royal Society at 8.30 P.M.	55.3	35.6	45.4	5	15	6	47	11	7	2	46	9	1	30	101
12	F	Royal Institution at 8 P.M.	55.6	36.6	46.1	5	13	6	49	0	34	3	10	10	1	4	102
13	S	Royal Botanic Society at 3.45 P.M.	56.1	33.7	44.5	5	10	6	50	2	2	3	29	11	0	48	103
14	SUN	PALM SUNDAY.	59.0	36.4	47.2	5	8	6	52	3	31	3	45	12	0	32	104
15	M	Victoria Institute at 8 P.M.	59.8	37.6	48.7	5	6	6	54	5	1	3	59	13	0	16	105
16	TU	Royal Horticultural Society—Fruit and Floral Com.	59.2	36.3	47.7	5	4	6	55	6	33	4	14	14	0	1	106
17	W	Hilary Law Sittings end. [mittens at 11.30 A.M.	59.5	36.1	47.8	5	2	6	57	8	4	4	32	●		after	107

From observations taken near London during forty-three years, the average day temperature of the week is 57.6°; and its night temperature 35.9°.

DIGGING AND MANURING.

FOR the last few years I have been seriously considering whether autumn-working of land has all the advantages claimed for it, and each season my faith in it has been shaken more and more, and now for the future, on my heavy soil at least, I shall not fret if none of it is dug before March. One great drawback to spring digging has always been the fancied necessity for getting crops in early, but since it is proved beyond dispute that better Parsnips, Onions, &c., can be grown on heavy soil if the sowing is deferred till the middle of April than if done earlier when the soil is not in a suitable condition, matters are considerably simplified and labour economised.

The principal objects of digging I take to be—1st, Making the soil permeable to air and water, easier to plant and easier for the roots to ramify. 2nd, Burying manure and weeds. 3rd, Changing the soil which has been cropped for that which has not, or mixing the two together. As regards the first, aëration is very imperfect if the soil is at all wet when turned over, and still more so if rain follows immediately after. Even if the digging is done in late summer before the heavy autumn rains the interstices on the surface are filled long before spring, and the loose soil below holds much more water and consequently takes longer to dry than that which has not been dug.

As for autumn-manuring, I do not know that it has any special advantages. It certainly has some disadvantages, inasmuch as it harbours slugs and worms, it also keeps the soil wet, and consequently prevents it becoming sweet. If it is argued that manure lying about all winter loses much of its value, then I say mix an equal quantity of soil with it, and it will improve instead of deteriorating.

The best plan I consider for heavy soil is to take the first opportunity in spring when the surface is moderately dry to break it up roughly, let it be baked by the sun and wind, and then when it becomes just so dry as to bear trampling on without binding, manure it, turn it over, and plant at the same time. If for sowing, draw the drills as the digging proceeds, and allow them to remain open for a few hours to get aired.

The best steel forks are far preferable to spades for ordinary digging, and I am pleased to say my men have at last taken to them kindly, and spades are at a discount.

There is another object in digging besides those named above which is gained when the sun becomes powerful—viz., raising the temperature of the soil. For tender plants and others which are required to grow quickly much is gained by turning over the soil several times, as it becomes dry and warm on the top. On the other hand, digging in frost, snow, or even wet soil, does an amount of injury which takes weeks and sometimes months of sunshine to remedy.—WM. TAYLOR.

WATERING ROSES.

I HAVE been asked by a Rose-loving reader of the Journal to write a few lines upon the important subject of watering.

No. 300.—VOL. XXXIV., NEW SERIES.

Now there is no subject on which rosarians differ more than on this point. Whether we consider the practice of exhibitors or non-exhibitors, people who grow thousands of plants with the sole object of exhibiting them, and those who have a few dozen garden Roses, all alike have their theories, and those are not only conflicting, but diametrically opposed to one another. It is no use saying that such and such great exhibitors water their Roses every night; the answer comes most readily, "But So-and-so, an equally good rosarian, never waters." Let us take instances: Mr. Jowett of Hereford, the champion last year, or at least the winner of the champion cup at the National, waters his Roses every night. He presses in all availing hands to water, and if a tramp or vagrant comes begging with the old story, "We have no work to do," "Work! I will give you work and pay you well too. Come and water my Roses." And it would interest your readers to know how many men and how many hogsheads of water were poured on the plants that produced those blooms at St. James's Hall.

On the other hand, an equally great rosarian, once a neighbour of his, now, alas for us! gone to that land where

"Everlasting Roses blooming
Make an everlasting spring"—

one of the most ardent lover of Roses, the late George Arkwright—never watered. He lived on a hill where there was scarcely any water, and he knew that once to begin watering and then to leave off was a most fatal course, so he never began. In like manner the greatest rosarians among the nurserymen are equally opposed to one another in their treatment of their Roses in this respect.

Mr. Keynes could only water a few standards, and the bulk of his Roses were left as dry as a cinder-heap in August; while Mr. George Paul has the New River running right through his nursery and can flood his place with water. Mr. Cant, *nulli secundus*, has only a little ditch running through his place, but in order to make the most of it, dams it up at different parts of his nursery. He then, for the double purpose I suspect of keeping off marauders, and of doctoring both Roses and thieves, sinks a lot of sugar oaks and tubs in his ground so that they are level with the soil, fills them half up with manure, and fills them with water from the ditch, but in this way he can only water a few of his very best.

Mr. Baker waters every night. His system is somewhat similar to Mr. Cant's, only his tubs are placed on stands. He has reduced watering to almost the standard of one of the fine arts; at least he combines the greatest excellence of material with the most delightful ease. He has the water laid on from the city works all over his garden; his tubs also line the rosery, and are filled with his own particular mixture, which is a secret I do not divulge (without leave at least). During the day the water is running into the tubs, and by evening his own particular brew is all ready. Hoses are attached to the tubs, and along each line of Roses nimble feet run watering each plant with the greatest ease and certainty of wasting no drop of the precious liquid.

I have spoken of watering, and, with the exception of

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Mr. Baker's and Mr. Cant's method, yet have said nothing of the mode or kind of watering. Some persons, no doubt, think any kind of watering is good. To this I demur. There is one kind of watering which is positively deleterious—I mean employing cold spring water; and why? Because you give the plants a sudden shock. It is like icing a tropical plant all the day long exposed to the hot midsummer sun, when suddenly down comes a flood of cold spring water poured out upon them. Can anyone doubt that such a course is sufficient, if not to kill at least to send the Roses into a galloping consumption? Let the water, if not rain water, be exposed to the sun all day, and let some kind of fortifying matter be added, and then you will do good, but not otherwise.

Now as to the fortifying matter. First of all comes guano. What of it? Well, I am confident from my own experience and from discussing this matter with others that there is no greater mistake than the indiscriminate use of this powerful manure. When used, and only then with the greatest care and caution in the smallest quantities, it is most serviceable, but otherwise is fatal in its effects. I lost last year plants to the value of £100 from the stupid plan of letting a boy put the guano on. I had given him strict directions how to do it, but he put enough on to burn up every plant in the collection. If you use guano it is much safer—in fact I am inclined to think it the only safe plan—to use it in a liquid form. Mr. Cranston does not believe in it, and he does not use it. He has over and over again instilled on me the principle of using it only with the greatest caution. My friend Canon Hole in his amusing book on Roses speaks of some plants which, like Gloire de Dijon, will do anywhere. Give them, like an Irishman when sent on a journey, just a hint of whisky—just a slight tingle of the lash, the least stimulant in the form of guano at the growing time of the year, and then discard it for the season.

We now come to the next watering material—liquid manure. Here we have the most valuable of all stimulants, manure applied at the most critical time in the most soluble form. Nothing can be so useful, and no money can be more usefully expended by the rosarian than in buying the materials for liquid manure. So convinced am I on this point that I am going to try this year without manuring in any other form than this. Instead of spending a large sum on stable manure I have built another tank. The practice of laying manure on the surface of the ground is so extravagant, so wasteful, and to me who live so far from a town so ruinously costly, that if I cannot do without it I must leave Rose-growing alone.

I now come to the various kinds of liquid manure which are beneficial. The best and strongest I believe to be, where it can be procured, sheep droppings placed in a tank of water and left to stew for a week or so; then the water may be renewed all the season, and I do not think the virtue of the manure will have been exhausted. But the difficulty of procuring this manure is very great, as naturally farmers do not like to part with this most fertilising matter without a decided *quid pro quo*, and most persons refuse whatever quid you may offer them. Here a man like my friend Mr. Jowett has an immense advantage as in other matters, for he has a large farm of his own and all kinds of manure at his service.

Next to this in value and importance comes, in my opinion, night soil, and this is a manure which can be obtained at the simple cost of making tanks. It is true that tanks are expensive to make, but when once made they will last at least an ordinary Rose-grower's life. I have lately made them of wood (red deal), and although I have only had three years' experience of them, yet I have found them so far watertight and to answer all my purposes. The cost of one to hold about twenty hogsheds when completed, including excavation of the earth and fixing, is about £20. The tanks are buried in the ground, with a trap door through which you can obtain the stuff and also introduce any guano or other manure that you may feel to be advisable to use. Of course people who live in towns or under Boards of Health, &c., cannot do this, but then they have the great advantage of being able to buy all kinds of manure cheap without having, as in my case, to pay as much for cartage as for the manure.

After night soil, liquid manure made from the cleansings of pigstyes is the next best, and to this may well be added soot. There is no question that soot is a most valuable fertiliser for Roses. Nothing gives so brilliant a colour to the blooms as soot. There are many other manures, such as superphosphate of lime and other artificial kinds, but these I have not tried yet, so shall give no opinion of them. I have given the results

of my experience in this article, and offer it to your readers. —WYLD SAVAGE.

CELERY CULTURE.

EARLY last year in Nos. 830 and 835 of the *Journal of Horticulture* two correspondents, "A. H." and "A NORTHERN GARDENER," strongly recommended the practice of transferring the young Celery plants direct from the seed bed or boxes to the trenches. "A. H.'s" practice is "to sow thinly in pans or boxes in gentle heat, and as soon as the plants are up removing to a cold frame and gradually hardening them off to the end of April, at which time they are placed outside, so that they may be ready for pricking-out into the trenches about the middle of May." The following is "A NORTHERN GARDENER'S" practice, which I certainly prefer:—About the first week in April the heating materials (leaves and manure) previously used for forcing Seakale and Rhubarb, is collected and shook into a heap, adding a few barrowfuls of lawn mowings, and water if required. This, when sufficiently heated, is levelled; a frame easily made of common boards is put on, and a few inches of rich soil spread over it. The soil is well watered; the Celery seed sown thinly and slightly covered with fine soil. Straw covers are placed over the bed, which remain on till the seedlings appear, after which all the light and air possible consistent with safety is admitted. Water is freely administered, and the plants are well thinned out in order to obtain sturdy plants, which are in June transferred to the trenches to perfect their growth. The latter practice is far from being new, an acquaintance of mine having long successfully followed it, not only with Celery, but also (as recommended by "A NORTHERN GARDENER") with many kinds of bedding plants, including Pyrethrums, Lobelias, Stocks, Asters, Zinnias, &c.

Last year I adopted the plan of sowing my main crop of Celery in a similar manner, but a fortnight earlier than recommended by "A NORTHERN GARDENER." At the time of sowing I did not intend transferring direct to the trenches, but the remarks above summarised induced me to do so. When raising kinds of plants that require to be removed I find it advisable to use sifted soil (which is obtained from an old rubbish heap) for the seedlings to root in, as well as for covering the seed. We also used some of the sifted soil when planting in the trenches. This was done by drawing a drill through the centre of the prepared trench and filling it in with the light soil previous to planting. Owing to limited space we planted double the number of plants required in the trenches. When the other trenches were ready every other plant was taken out with a trowel and transferred to its fresh quarters, filling up the holes left with soil. This I find far less trouble, and the plants are far less liable to suffer from drought than are plants pricked out into shallow beds on a hard bottom. They were never shaded, were watered overhead in the evenings of dry days, and occasionally a good soaking was given them till well established. We experienced a very dry summer, and the Celery fared badly for water, two good soakings of liquid manure being the most given. The result far exceeded my expectations, as all through the winter we have had plenty of extra good Celery, and that, too, in a garden notoriously bad for keeping it. I do not say that the above method of culture was the sole cause of success in keeping it, but it contributed largely towards it, for Celery well but not overgrown is undoubtedly the best for keeping; the growth being thick and well matured proves a better protection to the heart at earthing time, and also against the inroads of slugs, &c., than is the case with weakly-grown plants. "Bolters" were few in number, which was not the case with Celery grown on the old system. On lifting some of the best plants I was surprised to see the quantity and size of the roots. These had spread far out into the trench, thus rendering the plants to a certain extent independent of external influences. If following the above practice, before earthing-up see that no suckers remain on, as they seem more liable to produce them in quantity when so grown. The Celery we are using now was sown the third week in April, and of course is much smaller than the main crop. The final earthing of the late crop was deferred till late in November, a dry time as possible being selected for the operation. After having tried and seen tried in various parts of the country the plan of having two or more rows in a trench, I have decided to fall back on the single-row system, believing it to be the best.

The spaces between the Celery rows should be utilised for growing early and second early Peas, unless, as in my case, the neighbourhood be exceptionally dry, and also for Kidney Beans. The latter are largely grown by the market growers between their Celery rows, and when so grown appear to be unusually prolific. Lettuces also do well in this position, especially if sown in drills and thinned-out. When these spaces are to be cropped it is a good plan to dig them nearly up to the intended trenches, and this, with the soil from the trenches, will give a good depth of soil, the advantages of which are obvious.

The varieties of Celery which I prefer are Suttons' Solid White for the early crop, Osborn's Select Red for succession, and Major Clarke's Solid Red for main and late crops. Osborn's is a good solid variety, and kept well till the end of February, but Major Clarke's is the favourite here.—W. IGGULDEN.

CULTURE OF BOUVARDIAS.

WHITE flowers are always in great demand at all seasons of the year, but more especially during the winter and early spring months, and no class of plants can furnish a more constant and acceptable supply of them better than Bouvardias. The present is the best time to strike the cuttings, which the old plants will supply after they have been cut back after flowering. The cuttings will strike readily in a brisk moist heat, after which they should be potted into small 60-pots in a compost of two parts of fibry loam and one of leaf soil, with a little silver sand added. The stopping of the shoots must be well attended to in order to form compact plants. After they are well established they must be inured to a cooler temperature and receive more air. When they have made small bushy plants plant them out into a turf pit or cold frame in two parts loam, one of leaf soil, and one of well-decayed cow manure. Keep them close for a few days until they are well established, syringing them well and closing the frames early with sun heat. When they are in full growth more air must be given, and eventually on fine days draw the lights off entirely. From the beginning of June until the latter end of August the plants only need the protection of glass during cutting winds and heavy rains. Each plant at intervals must have the roots cut round to within 4 or 5 inches of the stem to keep the plants within bounds. Stopping must be discontinued by the first week in August, or sooner if the flowers are required early, and the plants must be lifted carefully so as not to disturb the balls, and be potted into different-size pots according to the size of the plants. Keep them close until they are established, when they may be introduced into heat as required, about 60° to 65° at night. If they are not kept in heat during the winter they do not bloom so freely; in fact, when they are kept in heat, as soon as one crop of flowers is off another will soon take its place. After the blooming season is over cut the plants well back and treat the same as the preceding year. B. Vreelandii for a white and B. Hogarth for a red I have found to be the most useful varieties, as they are dwarfer in growth and keep longer in a cut state than the slender-growing sorts. For bouquets in winter no flowers are more popular than those of Bouvardias, and I know of no mode of culture by which they can be provided with more ease and certainty than by the plan now recorded.—A SOUTHERN GROWER.

VEGETABLE CULTURE.

CHAP. XIV.—THE TURNIP.

THE Turnip is a native of Britain. It is one of the oldest and easiest cultivated of garden vegetables. In small gardens it is, as a rule, only grown during a few months in summer, but in most large gardens it is necessary to have a supply of Turnips all the year round, and this can be secured with very little difficulty. In all gardens the seed for the earliest crop may be sown from the middle to the end of March. In exceptional instances seed is sown before that time both in frames or in the open air with some fermenting material under the rows, but these means do not generally repay for the trouble required to carry them out properly. Seed sown at the end of March will produce roots fit for use by the end of May or beginning of June. About the end of May and early in June the plants soon run to seed, even when sown so late as the end of March; consequently it is very important, if a succession has to be kept up, that seed be sown frequently during April. Every ten days during this month is not too often to sow a small or large patch according to demand. During May and for the following three

months a patch should be sown every three weeks. When sown in August the plants do not bulb until far into winter or the following spring, and this is just what is desired to give a supply as near as possible up to the time the spring-sown crops come in.

The Turnip does not succeed well in a stiff clay soil, nor yet in one very sandy, but it does well in a moderate light soil. In this with plenty of manure the bulbs swell freely and do not seed so rapidly as when grown in a hard soil. As the Turnip grows quickly the manure used for its culture should be well decomposed when it is applied, or little of it will be utilised before the crop is matured. This is particularly the case with early Turnips, as they grow much faster and are not so long in the soil as those sown to stand the winter. The ground on which Turnips are grown should be of fair depth, especially if the soil is light, as a light and shallow soil combined has an invariable tendency to produce roots both stringy and hot. These never find favour in the kitchen, and care should be taken to sow Turnips on ground cool enough and sufficiently rich to produce fresh sweet roots. Previously to sowing the seed the ground should be dug over and be made fine on the surface with a fork. The seed may be sown broadcast, but we prefer it in rows and always adopt this plan. Drills are drawn 15 inches apart and about 1½ inch deep, and the seed is covered over with a little of the finest of the soil. In cold stiff soils a quantity of old potting soil should be used to cover the seed. The earliest crop may be sown on a warm border, summer crops in a cooler position, and the latest crops on a south border again. We sow our latest on the ground cleared from early Potatoes, and then the soil is only levelled down and the seed sown without digging the ground. When the young seedlings are just coming through the soil, and until they form a few rough leaves, a sharp look-out must be kept for the Turnip beetle. This insect is well known to both gardeners and farmers. The insects quickly destroy the whole of the young plants when once they begin to eat them; but the slightest indication of their presence should be the signal for dusting the whole of the plants with lime or soot, which are both excellent preventives when applied in time. The beetle is most destructive in dry weather. As soon as the rows can be seen the Dutch hoe must be run deeply between them, and when the plants are fairly into the rough leaves they should be thinned-out to 3 inches apart. When they again begin to meet in the rows they must be thinned-out to 8 or 10 inches apart, and at this distance good roots will be formed. No weeds should be allowed to grow amongst the plants at any time, and to keep them down and the soil free and open the hoe must be used frequently.

Where the roots do not remain in a good state of preservation in the open ground during the winter they may be lifted and stored like Carrots in a dry shed, or they may be laid in small ridges and thatched over in the open ground. Snowball and the American Strapleaf are good early sorts. Early Selected Stone and Red American Stone for main crop, and Orange Jelly, Chirk Castle, and Sutton's Green Globe for winter culture.—A KITCHEN GARDENER.

JUDGING ROSES.

JUDGED by his own words "WYLD SAVAGE," as the champion of small r. large Roses, must now own that he is pleading not for what is best in itself, but for that which he, and others like him, can best produce; for in saying that the soil of the advocates for medium-sized Roses is not so strong, rich, and well adapted for Briar Roses as that of us northerners who grow grander blooms, he distinctly lets his cat out of the bag and throws up the sponge.

If we, according to "WYLD SAVAGE," have the best habitat for the Rose, and such habitat produces larger blooms than the Wyld Savage growths of the environment of the southern counties, which we are told is miserable soil—a bed of stones, it is not to be denied that size is an evidence of superiority; for if ours are the more favourable conditions, and the result is increased size of bloom, it is queer reasoning to maintain that smaller blooms as the result of less favourable conditions are superior to large blooms.

My fellow midlanders and northerners will no doubt join with me in deeply sympathising with the difficulties both floral and logical of our southern friend, but we can hardly consent to adapt our views to his necessities.

Mr. Jowett, Mr. George Paul, and Mr. Cant will hardly thank "WYLD SAVAGE" for instancing them as supporters

or growers of medium-sized Roses. Mr. Jowett's stand of forty-eight at the National last year was full of magnificent specimens, and he will know better than to meet his competitors this season with small blooms, for Mr. Cranston's grand cup will follow the grandest Roses. As for Mr. George Paul and Mr. Cant, one has only to look at their stands and their catalogues to see the most complete refutation of the idea that they are advocates of medium-sized Roses for any other purposes than the border, the bouquet, the coat lappet, or the sentimentalist's offering.—E. N. POCHIN, *Barkby Vicarage, Leicester*.

THE BOTANICAL AND HORTICULTURAL SOCIETY OF DURHAM AND NORTHUMBERLAND.

THE spring Exhibition of this old-established and rejuvenated Society was held in the Town Hall and Corn Exchange, Newcastle-upon-Tyne, on the 3rd and 4th inst. The sum of £185 2s. 6d. was offered in prizes, the number of classes being ninety-two. Every description of flowering plants cultivated in gardens or greenhouses, and that can be had in flower at this season, has been included in this comprehensive schedule. The Show held this year was in comparison with that of 1877 much superior both as regards the number of exhibitors and the quality of the plants exhibited. The prizes were so liberal and the exhibitors receive such kind and courteous treatment from the executive, that it naturally follows, not only that a large number of plants should be forthcoming, but that they should increase in quality and numbers every year. The canny Newcastle folks evidently mean to make their exhibitions second to none. The Committee headed by W. J. Taylor, Esq. and J. H. French, Esq., Honorary Secretaries, seem to work most harmoniously together. All of them are ardent lovers of flowers, and their work is to them a labour of love. In noticing the Show it will be convenient to group each class of plants by themselves.

GREENHOUSE PLANTS.—Of Azaleas there were a few fairly good specimens, but they were not quite so well grown as they might have been, and the varieties are not of the most recent introductions. For four Azaleas, Mr. George Stockley of the Elswick Park Company gained the first prize with specimens trained as pyramids. Mr. M. D. Thompson, gardener to Lindsey Wood, Esq., South Hill, was second; and Mr. H. Wright, gardener to Grosvenor Talbot, Esq., Burley, Leeds, third. Four stove or greenhouse plants, Mr. H. Wright had by far the best; his specimen plant of *Imantophyllum minimum grandiflorum* was as fine as any we have ever seen, it had seven superb heads of bloom. A plant of *Phajus grandifolius* had six good spikes. The other two were a basket of *Dendrobium nobile* and a fairly flowered *Epacris*.

Camellias were represented by specimens from 3 to 5 feet in height, with clean healthy foliage and full-sized flowers. Mr. G. Stockley and Mr. H. Wright had the best. *Epacris* were not shown in good condition; the plants though large showed signs of exhaustion, and the same remark applies to the *Heaths*. *Genista fragrans* made a very fine feature in the Show; a row of plants from 8 to 6 feet in height was very conspicuous. Mr. Robert Turnbull, gardener to George Luckley, Esq., Jesmond Grove, had the best plants, and an excellent specimen was sent by Mr. M. Larke, gardener to the Rev. R. F. Wheeler, Vicarage, Whitley.

Forced hardy shrubs including *Rhododendrons*, *Deutzia gracilis*, &c., deserve a passing notice. *Rhododendrons* were represented by large well-flowered specimens. And here again it would be to the advantage of exhibitors if they were to obtain some of the more recent varieties. The prize specimens were but little removed from the common *ponicum*. The specimens of *Deutzia gracilis* were large and well-flowered dwarf bushes. Those that gained the first prize were really splendid. Mr. Thos. Battensby, Blaydon, was the prizewinner.

Cinerarias, for which a number of classes were provided, were very well grown, and to show the extent of these it may be stated that seventeen collections were staged. Mr. A. Methven, gardener to T. Lange, Esq., Heathfield House, Gateshead, was first for six. His plants were large with healthy foliage and finely developed flowers. Mr. W. James, gardener to J. G. Riddell, Esq., Swinburn Castle, was a good second; and Mr. H. Wright third with small but well-grown specimens, some of the flowers being quite 2 inches across. Mr. T. Haig, gardener to Thomas Adamson, Esq., Springfield, also gained a first prize, but space forbids us giving the details of many good collections.

Cyclamens in collections were fairly well grown, the highest honours going to Mr. T. Wilson, gardener to Mrs. Fleming, Normanby Hall, Middlesborough; Mr. J. Hutchinson, gardener to J. J. Hunter, Esq., Whickham Grange; and Mr. T. Battensby. A row of the Lily of the Nile (*Calla æthiopica*) made a good show, and Mr. W. Middlemas had the best examples. Zonal *Pelargoniums* were very good for the season. Edward Adams, Esq., Swallow, had an excellent specimen of a white-flowered variety with at least thirty fine trusses, and the Rev. R. F. Wheeler's gardener, Mr. Larke, had the first prize for two plants.

Primula sinensis were very fine indeed, and many excellent collections were staged. Mr. G. Stockley, Mr. W. Charlton, and Mr. W. L. Thompson of 87, Stanhope Street, had the best. There were also a few Roses in pots. We would strongly urge our Newcastle friends to give considerable attention to these, as no plants can be more attractive at a spring show. Mr. T. Wilson gained the first prize; Mr. E. H. Bradley, gardener to T. S. Turnbull, Esq., High Barnes, Sunderland, the second; and Mr. E. Adams the third. That fine herbaceous plant *Dielytra spectabilis* well deserves a meed of praise, especially the single specimen sent by Mr. T. Battensby. Mr. W. L. Thompson showed six fine plants, and Mr. A. Methven was first for two. The class for *Spiraea japonica* was a well-contested one, the plants being of moderate size but well flowered. Mr. H. Wright gained the first prize, Mr. J. Hutchinson second, and Mr. W. Alexander, jun., Hexham, third. Lily of the Valley was represented by seven collections not one of which but was worthy of a prize. The large pots from Mr. John Thompson, Ravenside Nurseries, were really splendid, though not at their best on the first day of the Show. Mr. H. Wright and Mr. T. Wilson also competed. Mr. J. Thompson and others had also some nice pots of *Scillas*. Mr. J. Hutchinson, E. Adams, Esq., and Mr. J. Brogden, gardener to Mrs. Morrison, Jesmond Park, had fine well-flowered pots of *Mignonette*. The six well-flowered pots of *Myosotis* from William Lawes, Esq., of Ponteland did not fail to command admiration. A bank of the common Wallflower, spreading around the most delicious perfume, was much admired; certainly we never saw finer plants before than the six exhibited by Mr. G. Stockley. They were examples of skilful culture, the spikes strong, foliage perfect, and flowers $2\frac{1}{2}$ inches across. Mr. Stockley also gained the first prize with German Wallflowers. Other exhibitors were Mr. J. Gardener of Swallow and Mr. A. Methven.

Auriculas.—Of these there were eight collections, but whether it is that good sorts are scarce or that the Show was too early for the flowers we know not; certain it is the exhibitors must have been driven hard to make up their lots, as some of the flowers were pin-eyed and others were not in character. E. Adams, Esq., and Mr. J. Garret, jun., of 85, Newgate Street, had the best flowers.

Polyanthuses, on the other hand, were very fine indeed, and great praise is due to Mr. Henry Sanderson of Whalton for the admirable manner in which he staged his plants. He had two noble examples of George IV. (Buck), with flowers nearly 1½ inch across; Lancer (Bullock), Exile (Crownshaw), Formosa (Barnard), and William IV., a flower of his own raising. Mr. W. Hedley of Whalton was second, and Mr. R. Atkinson third. For three pots Mr. Sanderson was again first, Mr. R. Atkinson second, and Mr. J. Bilclough, Winlaton, third.

Pansies in pots were healthy clean-grown examples. Mr. Sanderson was first with Col. Muir, a fine dark self; Mrs. Ramsey, white; Robert Burns, yellow ground; Lavinia, white ground; Isaac Craig, white ground; and Tom White, yellow ground. Mr. R. Atkinson was second, and Mr. J. Gardener third with six fine pots of Cloth of Gold. Six fine pots of Daisies from Mr. M. Larke gained the first prize, Mr. R. Atkinson was second, and Mr. W. Spoor, jun., Swallow, was third.

HYACINTHS.—These were the principal feature in the Exhibition, and they were very well grown in some cases; but an objection might be made to the practice of showing three bulbs in a pot. To do this well no exhibitor would venture to show them in the pots in which they were grown, as it would not be possible to get the spikes uniform in that way. We think it would be better to offer prizes for thirty-six Hyacinths in the same number of pots. For thirty-six Hyacinths, three bulbs in a 7-inch pot, Mr. W. J. Watson, The Hall Nurseries, Penham, was first. His spikes were uniform in size, and the bells very fresh and well arranged. Some of the best, though all were good, included *Ida*, single yellow; General Pelissier, King of the Blues, Macaulay, and Von Schiller. Mr. J. Thompson was a very close second, and amongst other fine spikes were excellent examples of *Koh-i-noor* and *La Grandee*. Messrs. H. Dewar & Co., 97, Grey Street, were third; and Messrs. S. Nairn & Son, Pilgrim Street, fourth. For twelve Hyacinths Mr. J. W. Moorman, gardener to the Misses Christy, Kingston-on-Thames, was first with spikes similar to those he exhibited at Regent's Park, London. Mr. J. Thompson also gained a first prize for twelve Hyacinths; and Mr. Moorman was first for six. Double Hyacinths were also invited, but they did not make a striking display. The best double sorts were not shown. We would advise the exhibitors to procure such sorts as *Koh-i-noor*, Garrick, Laurens Koster, Van Speyk, Lord Wellington, Louis Philippe, and Blocksberg. Except *Koh-i-noor* these are not expensive. Mr. C. Wass, gardener to M. Anderson, Esq., was first; Mr. A. Methven second; and Mr. T. Wilson third for six.

Mr. Moorman had by far the best single Tulips. Mr. W. J. Watson was second, and Mr. J. Thompson third for nine pots. For six Mr. Moorman, Mr. T. Wilson, and Mr. A. Methven had the prizes in the order of their names. The plants sent by Mr. Moorman were greatly admired, and they were safely returned by the officials of the Show. *Polyanthus Narcissus* were exceedingly well grown, and surpassed those exhibited in London. Mr. J. Thompson was first with splendid pots of Grand Monarque.

Gloriosa, &c.; Mr. A. Methven was second. In the class for three pots Mr. A. Methven and Mr. C. Wass gained the awards. It may be as well to state that thirty-four collections of Hyacinth were staged in competition.

Cut flowers, bouquets, epergnes, table plants, &c., were staged in a room together, and they made an excellent display, attracting great crowds of visitors. Cut blooms of Camellias were very good. The best came from Mr. H. Wright: he had a pale pink flower very fine, a sport from *Mathotiana alba*. Mr. J. Brown, gardener to E. Joicey, Esq., Whinney House, was second, and Messrs. James Gellender & Sons, Grey Street, were third. Trusses of Azaleas were well shown, but the best collections were disqualified owing to their being shown in bunches. Cut Roses were very good. Mr. J. Jupp, gardener to R. Brown, Esq., Bentinck Terrace, was first with very fine *Maréchal Niel*. Mr. W. Hedley and others showed fine blooms. Mr. E. Lazenby, gardener to Mrs. Gurney Pease, Woodside Gardens, Darlington, had the best trusses of *Rhododendrons*. The best single vase or epergne was shown by Mr. M. D. Thompson. It was not so elaborately arranged as some of the others, but it certainly displayed the most taste. The trumpet-shaped vase at the top was filled with Orchids, pink zonal *Pelargonium*, and *Begonia nitida*, with fronds of *Lygodium scandens* hanging down to the tablecloth. The base and centre was composed of *Pelargoniums*, *Eucharis*, and *Astilbe barbata*. There were eight vases in competition, the other prizewinners being Mr. W. Ison, gardener to W. Grimshaw, Esq., The Cedars, Sunderland; and Mr. E. H. Bradley, gardener to T. S. Turnbull, Esq., High Barnes, Sunderland. There were four competitors in the class for ladies only. Mrs. Ramshaw, Dryburn, Durham, gained the highest award with an attractively arranged vase. Mrs. Webster was second, and Mrs. Gellender third.

Hand bouquets were numerous and very good, especially in the open class. There were sixteen competitors. Messrs. Nairn and Sons were placed first, and the bouquet was very tastefully arranged. It was made of Roses, one white Camellia, white Lilac, double white Primula, Lily of the Valley, and *Odontoglossum Alexandræ*; the second-prize one was also very good, from Mr. H. Wright; Mr. C. Masters, Sunderland, third; Mr. T. Ramshaw, gardener to Mrs. Wharton, Dryburn, Durham, was fourth; and Mr. H. Atkinson, Sunderland, fifth. Mrs. Ramshaw had the best bouquet in the ladies' class; Mrs. Crament, Sunderland, second. There were also many good button-hole bouquets; Mr. C. Petty of Bishop Auckland was first, Mr. T. Battensby second.

Six plants for the dinner table brought out seven competitors, the best examples coming from Mr. H. Wright; Mr. W. Kershaw, gardener to Thos. Gray, Esq., of Spital Hill, being second; and Mr. M. D. Thompson third. Beautiful skeletonised leaves, &c., were shown by Mr. E. H. Hodgkins, of 86, Hyde Grove, Manchester; wax flowers by Mrs. M. A. Lederthong, 71, West Street, Gatehead.

The buildings where the Show was held were thronged with visitors. £250 was taken at the door against £67 last year; 1000 subscribers' names were registered at the spring show last year. The number of subscribers now amounts to 4500. During the Show 250 new members were enrolled by the Secretary. The number who paid for admission was 5000, and it is estimated that 16,000 attended the Show on the two days. We hope the Committee will obtain, as they deserve, success.

GHENT INTERNATIONAL EXHIBITION.

The following particulars of the Show were delayed in transit, and did not reach us in time for publication last week.

NEW PLANTS.—We will first refer to the cream of those staged by our countryman Mr. Wm. Bull of Chelsea, who took the first honours in every class; and we feel constrained to commence with the grand and unique Palm called *Pritchardia grandis*, which certainly must always take first rank wherever this noble order finds admirers, and we hope soon to learn that young plants are obtainable. When better known we think this may prove to belong to an entirely new genus. Another handsome and distinct-looking Palm is *Martinezia Roezlii*, with large, broadly oblong, bifid leaves, the petioles being clothed with a spiny tomentum: the name is only provisional, and we imagine it ultimately may prove to be a *Bactris*. Of the following we can offer no opinion, as the specimens shown had not sufficiently developed their characters, but they bid fair to become welcome additions to our plant houses—*Geonoma Bluntii*, *Cyphekentia macrocarpa*, *Drymophloeus paradoxus*, and *Kentia Wendlandii*. Of Ferns several handsome examples were exhibited, the most notable being the rare, beautiful, and strange-looking *Dipteris Horsfieldii* mentioned so admirably by Wallace in his records of a journey to Mount Ophi, and we hope soon to see its grand companion *Matonia pectinata* an inhabitant of our houses again. The graceful *Davallia fijiensis* must be looked after by all pteridologists. *Alsophila undulata* is a Fern of great beauty, whilst those who love variegation will do well to secure *Lastrea aristata variegata* which hails from Japan. In *Doodia aspera multifida* we have an example of a somewhat stiff-habited species producing elegant tassels on the apex of the fronds, which adds materially to its

grace and beauty. *Sadleria cyathoides*, a small-growing Tree Fern, must become a general favourite both on account of rarity and beauty combined, two qualities which do not always go hand in hand.

Amongst Cycads the rare and curious bipinnate *Bowenia speculabilis serrulata* stands first, whilst the pinnate *Zamia princeps* is in no way behind in its own style of beauty. Several other attractive species were staged, but want of space prohibits a complete enumeration. We should, however, specially recommend these plants to amateurs; their beauty is massive, and they do not soon outgrow limited accommodation. Of miscellaneous plants the most striking were *Dieffenbachias reginae*, Shuttleworth, and splendens, all compact in habit and with beautifully variegated leaves; *Anthurium Veitchii*, the curiously long plaited leaves being very distinct; *Dracæna Goldiana* and *Carludovica Drudei* which still maintain their attractions. Besides the beautiful hybrid *Dendrobium Ainsworthii* which secured the first prize for Mr. Bull, the only other new Orchid shown was staged by Messrs. Wm. Rollisson & Sons of Tooting; it was in their large collection, and was named *Dendrobium nobile Rollisoni*. The whole of the sepals and petals were an intense rich crimson purple—the richest-coloured member of the whole genus.

M. J. Linden of Ghent staged some extraordinarily beautiful varieties of Bromeliaceous plants under the name of *Massangea Lindenii* varieties; these have much in common with *Tillandsia muscica*, but the peculiar tessellations in the leaves are more vividly defined. *Cespedesia Bonplandi* is a *Theophrasta*-like plant, devoid of the coarseness in habit usually seen in the members of the latter genus, and will in all probability become a general favourite. In this exhibitor's collections were many *Dieffenbachias*, *Aralias*, and *Anthuriums*, striking in character and suitable for very large collections. Several Palms of great promise were also exhibited, but very few had attained their true character. In *Kentia Luciani* we fancy we recognise the plant figured in the "L'Illustration Horticole" under the name of *Kentia gracilis*, and shall be glad to see it again when better developed.

M. L. Van Houtte also exhibited a large number of novelties; the most striking were *Caladium Souvenir de Louis Van Houtte*, *Anthurium Warocqueanum*, *Goodyera Rollisoni*, *Nephrolepis Duffii*, and *Dracæna Robinsoniana*, most brilliantly coloured. Many good plants came from the establishment of M. Aug. Van Geert, most of which, however, are familiar to English plant growers; the bold-growing *Heracleum Frederici* fol. var. being an exception. In the collection of M. Jacob Makoy & Co. were three dwarf-growing *Marantas* in the way of M. *Massangea*, but scarcely so desirable, named respectively *Kerohovii*, *Morreni*, and *Pierardi*, but a bold and handsome Stag's-horn Fern named *Platycerium Hilli* deserves special notice.

ORCHIDS.—These plants would have been very badly represented had not the Messrs. W. Rollisson & Sons of Tooting been to the fore. This firm staged two collections of Orchids—namely, twenty and fifteen, in all probability the finest ever set up in any exhibition in Belgium, and indeed they would have required a very fine lot to have wrung the honours from them at the best shows in England. These two collections were awarded the first prizes by acclamation. Amongst them we noticed grand specimens of *Cypripedium villosum*, *Dendrobium Wardianum*, *Cattleya citrina*, and *C. Trianae Atalanta*, *Vanda Rollisoni*, *Dendrobium cambridgeanum*, *Odontoglossum gloriosum*, and *O. Alexandræ*; *Lycaste Skinneri*, *Masdevallia Lindenii*, *Dendrobium luteolum*, *D. fimbriatum oculatum* and *D. crassinode*, *Cypripedium Lowii*, *Odontoglossum Cervantesii*, and several others. In Messrs. Rollisson's collection of the beautiful and now exceedingly rare *Anæctochilus* and *Goodyeras*, and which received the first prize, a fine specimen of *G. Rollisoni* was noticeable; it was also shown in a small state by M. L. Van Houtte in his collection of new plants. This collection of Orchids was increased in interest by the grateful perfume which pervaded them, produced by the introduction amongst them of a plant of *Boronia megastigma*. This was immediately detected by both the King and Queen, and Mr. T. R. Rollisson had to bring the modest-looking but deliciously perfumed plant forward for their Majesties' inspection; the Queen and the Countess of Flanders were afterwards graciously pleased to accept from the exhibitor a plant each, since which *Boronia megastigma* has been in great demand. M. *Massange* of Liège also staged a good collection of cool Orchids, amongst which we noticed well-grown plants of *Odontoglossum Pescatorei*, *O. pulchellum*, *Oncidium Cavendishii*, *Masdevallia trochilus*, *Cattleya citrina*, and *Lycaste Skinneri*. In the Class 10 for amateurs M. Oscar Lamarque of Liège exhibited well, the most noteworthy being *Cypripedium Parishii*, *Odontoglossum Pescatorei*, an unusually fine variety; *Aërides Fieldingii*, *Vanda Dennisoniana* and some varieties of tricolor; *Lælia superbiens*, and *Huntleya meleagris*. One more collection of Orchids remains to be mentioned; this was some terrestrial kinds shown by M. Louis Van Houtte, comprising *Cypripedium pubescens* and *C. parviflorum*, *Orchis longicornu*, *Cypripedium acaule*, *Orchis maculata*, *Ophrys apifera*, *Aceras anthropophora*, *Ophrys lutea*, *myodes*, and *rosea*, and *Calypogon pulchellus*.

Amongst other plants not noticed in our report of last week were the gold-medal collection of Cape and New Holland plants exhibited by Messrs. W. Rollisson & Sons. The more noteworthy specimens in this collection were small but well-grown examples of *Boronia megastigma*, *B. pinnata*, *B. tetrandra*, *Genetyllis fuchsoides* and *tulipifera*, *Erica Cavendishi*, *Imantophyllum minutum*, *Leucopogon Richii*, *Epacris miniata splendens*, *Toxicophlæa spectabilis*, *Grevillea Preissi*, *Pultenæa rosea*, &c.

NOTES AND GLEANINGS.

LETTERS from various districts, which we were unable to publish last week on account of the detailed report of the Ghent Show, inform us of the severity of the LATE STORM. Expanded blossom exposed to the force of the gale is killed. Rose trees which previously were green and thriving were blackened by the frost wind, and Cabbages were torn in tatters. Such were the tidings that reached us. Still we have strong hopes that the danger incurred by the fruit trees has not been serious; only the Plums as standards had their blossoms expanded, and of these a portion have passed tolerably safely through the ordeal. Pear, Apple, and Cherry blossom, so far as we have seen, is not greatly injured, and trees on walls that were protected by canvas have not suffered to any great extent; but on the contrary, where the trees were exposed to the boisterous wind and drifting snow, the blossom has been so much damaged that good crops of fruit are hopeless. Standard trees cannot well be sheltered, but trees on walls can; and almost every year's experience and losses afford sufficient evidence that early-blossoming wall trees must not only be protected, but the protection must be thorough if good crops of fruit are to be insured. Now that the results of the injury sustained by vegetation owing to the severity of the weather during the last week of March and the first of April can be better seen, and future fruit prospects can in some degree be estimated, we shall be glad to receive information on the subject from cultivators in various districts.

— We are informed that Mr. S. Jennings, the Assistant Secretary, will read a paper at the next Committee Meeting of the Royal Horticultural Society (April 16th), on the GREAT INTERNATIONAL HORTICULTURAL EXHIBITION recently held at Ghent.

— THE spring Exhibition of the TORBAY HORTICULTURAL SOCIETY, held on the 28th of March at the Bath Saloon, was a great success as far as the display itself was concerned, but the wintry weather prevented a large attendance. Those, however, who resolutely braved the cold wind were amply compensated for their pains. On former occasions more than sufficient space was found in the large saloon, but on this occasion it was full to repletion, and the Committee were obliged to occupy the smaller saloon in addition. The six Azaleas staged by Lady Louisa Finch-Hatton, and the three Azaleas and specimens by Col. Campbell, were marked features in this saloon. The larger stands in the centre of the hall were occupied by collections of miscellaneous plants, a magnificent group being staged by Mr. J. Lawless of Exeter, to whom was awarded the premier prize—a silver cup, presented by Mr. C. Richardson of Cary Castle. The nurserymen of the neighbourhood exhibited strongly, and their displays were of more than usual brightness, the favourable season having brought out the blossoms early and freely. The bouquets and table decorations were unusually strong in number, also a lovely basket of cut scarlet Camellias from Mr. E. Vivian grown in the open air, and some good examples of Polyanthus from Mrs. D'Aeth, The Knoll. On the opposite side were arranged some very fine vegetables, and notably two beautiful pans of Mushrooms in a growing state sent by Mrs. Singer of Paignton, also a good dish of ripe Strawberries from the same lady. The nurserymen (Messrs. Curtis, Sanford, & Co.; Messrs. Phillips, Torbay Horticultural Establishment; Mr. W. B. Smale, Horticultural Dépôt) were well represented; indeed, such exhibitions as these could not succeed without their friendly help.

— AT the usual monthly meeting of the HORTICULTURAL CLUB, held on the 3rd inst. at the club house, Messrs. R. Osborn, Fulham; J. Newington, Ticehurst; and Harrison Weir were elected members.

— We have received part 4 of vol. v. of the "JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY," which is much larger and superior to part 3. Besides containing records of meetings the present issue publishes a list of donors of plants and seeds; and furnishes lists of the plants, flowers, and fruits certificated during 1877. It contains also reports on the trials

of Tomatoes, Asters, and Turnips at Chiswick; also papers on the fungoid diseases of the Vine by Dr. M. C. Cooke, and on the Cyclamen by the Editor, Mr. Samuel Jennings, F.L.S., the latter of which, so far as it appears in the Journal, we print in another column.

— MR. WILLIAM PAUL of Waltham Cross sends us the following account of the ORIGIN OF THE GREEN ROSE (*R. indica viridiflora*):—"It was first seen in France in the possession of M. Verdier of Paris, in 1855, who received it from an American nurseryman of Augusta, Georgia. I received it from the late Mr. Mieliez of Lille as a new Rose in 1857." Perhaps American readers can tell us something about the origin and history of this Rose.

— THE following plants were in BLOOM in the open border on the 1st of April at Glenthorne, St. Mary Church, Torquay:—*Anemone fulgens*, *Andromeda*, white *Alyssum*, *Alpine Auricula*, *Borage*, *Cowslip*, *Daisies*, *Heath*, *Hycinths*, *Heartsease*, *Myosotis*, *Oxlip*, *Periwinkle*, *Polyanthus*; yellow and various colours, double white, lilac, and crimson *Primrose*; various *Narcissuses*, *Jonquils*, *Daffodils*, *Pulmonaria*, double white *Stocks*, *Viola cornuta*, white and purple *Violets*, *Tulips*, single and double yellow *Wallflowers*, double-flowering *Almond*, *Berberis aquifolia*, *B. Darwinii*, *Coronilla*, *Laurustinus*, *Ribes sanguineum*, *Apple*, *Pear*, and *Victoria Plum*.

— MESSRS. C. LEE & SON, Royal Vineyard Nursery, Hammersmith, have sent us blooms of the new French VIOLET BELLE DE CHATENAY (Paillet). The flowers are perfectly double, and the petals are well expanded. The colour is white faintly tinged with purplish lilac, especially on the reverse sides of the petals. Every flower exceeds 1 inch in diameter and some are nearly 1½ inch. They are delicately fragrant and very fine.

— IN an article in "Provence du Littoral" on HORTICULTURE AT SAN FRANCISCO in California we read that in the suburbs of that city every house has a small garden between it and the street. These little gardens are generally well kept and furnished with pretty plants, and particularly climbers. In one of them there is a Cloth of Gold Rose which reminds us of *Maréchal Niel*. It is so rambling and vigorous that it completely covers the whole house even to the windows of the third storey; then at this height its branches run on the trellis surmounting a balcony and again hang over in front. The trade in flowers is also very considerable in San Francisco, particularly at La Plaza, which is the part of the city where numerous florists, principally French, are domiciled. Every evening in the streets, at the doors of the theatres, balls, concerts, &c., flower dealers by hundreds sell cut flowers in much greater quantities than they do in New York, Boston, and other large cities of the Union. At San Francisco these cut flowers are chiefly Roses and Tree Carnations, of which a great number of beautiful varieties are cultivated. They also cultivate very extensively forced Roses.

— MR. JARRATT, late in the Orchard department of Mr. B. S. Williams's nursery at Holloway, has been appointed gardener to Robert Warner, Esq., at Broomfield, Chelmsford. Mr. Jarratt will thus have charge of one of the most valuable collections of Orchids in this country, and will have ample scope for turning his training and cultural abilities to good account.

— WE learn with regret of the DEATH OF MR. CHARLES GEORGE TURNER, a youth of much promise, the youngest son of Mr. Turner, Slough. Mr. G. C. Turner selected medicine as his profession, and proceeded to the University of Edinburgh to graduate in the usual way, passed his preliminary examination, and was preparing for his professional examinations, but he has died at the early age of eighteen.

— MR. J. WEBSTER, Gordon Castle, communicates the following hint on HOLLY HEDGES to the "Journal of Forestry."—"If Quick or common Thorn is planted along with Holly, the latter will close up even if planted at the distance of 2 feet apart. The one assists the other to grow up more rapidly, and the Holly will entirely take the place of the Thorn in course of time. Nip the points off the leading shoots of Holly when young, to force strength into the lower branches. There are several of the same sort of hedges about this place."

— A FINSBURY PARK CORRESPONDENT contributes the following testimony to the GROWTH OF LONDON and the invasion of gardens by bricks and mortar:—"Five years ago my cottage was surrounded with fields and here and there a cottage and a garden; the Eel Pie House was in existence,

and the sluice was not demolished. The New River like a silver thread winded round and about. All is vanished. We are a nation of shopkeepers. Where cattle used to graze and rooks were wont to congregate you can now buy tripe and treacle, paraffin oil and pork, second-hand clothes and faggots. We are swallowed up in a wilderness of bricks and mortar."

— MR. W. BIGGS communicates the following description of a FINE SPECIMEN CAMELLIA at Blithwood House, West Derby, the residence of F. J. Babcock, Esq.:—"The tree is growing where it was planted out upwards of sixty years ago, then a large plant, as its history is given with the household. It is now growing on a raised bed 12 by 14 in a large span-roof house 26 by 30 feet, the centre 22 feet high. The Camellia in diameter is 20 feet; girth of stem, 29 inches at 1 foot from the soil; height of tree 19 feet. It is a great bush much cut in to keep it within bounds, and with fine healthy foliage, with a profusion of expanded flowers and buds to open about ten days from this date (March 29th). The quantity of flowers taken off annually for the last ten years is upwards of three hundred dozen. To keep the tree in robust health top-dressings are given annually, and it is also copiously watered with liquid manure from the stable yard and guano alternately, occasionally also with soot water, and it is frequently syringed throughout the growing season. The variety is the old Double White."

— IN the practical notes on growing and forcing SEAKALE contributed to this Journal by "J. P." reference is made to the mode of growing the plants in rows during the summer and digging up every alternate row for forcing, the rows remaining being covered with 6 inches of soil and left to produce late "Kale." We have recently seen some Seakale thus grown by "J. P." and finer produce we never witnessed. The heads were 6 inches in length and as much in circumference, and the sun had done all the heating. Many owners of gardens have the means of growing Seakale, but have neither manure nor other conveniences for forcing it, and hence they deny themselves the luxury of this wholesome and delicious vegetable; but by growing it in the manner referred to, and heaping light soil over the crowns, they will by waiting have produce well worthy of being waited for—that is, if stout crowns are provided. For producing good "Kale" next spring, growing sets should be planted now in ground that has been deeply trenched and enriched with manure.

— THE value of GARDENIAS AS CUT FLOWERS at this season of the year is known by the large prices they are making in Covent Garden Market. Mr. Baker, of Coombe Cottage, has now some excellent plants in the greatest luxuriance and heavily laden with flower buds in various stages of expansion. So profusely are they set that in the space of a square foot we counted over sixty flower buds, some open, others opening for succession. These Gardenias are apparently growing as free as Portugal Laurels, and are huge bushes, the branches measuring several feet from the stem to the points, while the foliage is of the brightest green and remarkably clean. One of the plants is twelve years old, and the flowers on this plant measure $3\frac{1}{2}$ inches in diameter. The plants are in pots plunged in decayed leaves, which we have no doubt the roots have penetrated, and from which they derive a certain amount of nourishment; but the greatest key to success, Mr. Baker tells us, is plenty of water both at the roots and overhead. It is a long time since we have seen Gardenias so profusely set with buds and so remarkably clean and healthy as the admirable examples of culture referred to.

— A BOTANICAL EXCHANGE SOCIETY has been established at Buda-Pesth for the purpose of exchanging specimens of the native plants of Hungary, Transylvania, Croatia, Slavonia, and, as far as possible, of Turkey and Russia, for those of other parts of the world. During the last two years upwards of three hundred botanists have joined the Association, and more than 120,000 specimens have been distributed. All communications and applications for further information should be addressed to Herr Richter Lajos, Erzherzogin Marie Valerie Gasse, No. 1, Buda-Pesth, Hungary, accompanied by a subscription of four marks, or five francs, for which sum an exchange of a hundred specimens will be effected.—(Nature.)

— GARDENERS often experience much trouble in SOFTENING HARD PUTTY, and by such the following plan is worthy of trial. Break the putty into lumps of the size of a hen's egg, add a small portion of linseed oil, and water sufficient to cover the putty; boil this in an iron vessel for about ten minutes, and stir it when hot. The oil will mix with the putty. Then

pour the water off, and the putty will, we are informed, be as soft as if fresh made.

PRUNING TEA ROSES.

IN answer to the query of a lady rosarian as to the pruning of Tea Roses, I am afraid I must plead guilty to giving contradictory advice in two years. The only gratifying part of my fair critic's communication is the proof that my letters are prized by some at least of your readers.

It is true that at the time I wrote practical experience had caused me to believe that hard pruning was good for Tea Roses, nor do I entirely withdraw the opinion now. I still think that for the purpose of producing extraordinary fine blooms you may with advantage prune hard, but with this great disadvantage—you do so at the expense of soon losing your trees altogether. The probability is that the trees will bleed to death, and next season be useless cumberers of the ground.

Since writing the letter to which my fair correspondent alludes I have had considerable experience and also talked the matter over with the greatest amateur rosarian, and I now conform to the opinion expressed by Canon Hole in his book upon Roses, that Tea Roses require the least possible pruning.

For the purpose of convincing your correspondent that my change of opinion is not without good reason I may add that a Tea Rose called Rubens, which is not often of use in an exhibition stand, is growing against a wall in my kitchen garden. It has been left alone for years, and has never been touched with the knife. The tree had been forgotten at the time of pruning, and was not of much value for producing exhibition Roses on account of the petals being so few and loose. This tree last year gave me lovely blooms all the season. I rarely had a large stand which did not contain a good bloom of Rubens. I mentioned this matter to Mr. Baker, and he confirmed my experience by telling me of trees he had of other Teas which had done so well without pruning, that he was quite sure Teas only required their dead wood cutting out and the very slightest of what we may call "tipping."

With regard to the question of Moss Roses, I certainly should not like to pit my poor opinion against such a renowned *magister artium* as Mr. George Paul; and in any conflict of opinion on Rose culture I would advise your fair correspondent to follow his advice in preference to mine.—WYLD SAVAGE.

PHEASANTS AND CROCUSES.

I READ the paragraph under the above heading in your number of the 4th inst., and I would remark a similar case with this exception—that my yellow Crocuses suffer from sparrows instead of from pheasants. Although I grow, probably, thousands of these flowers I never have a clump or patch of them to remain in bloom, for the sparrows pull the flowers from the bulbs as fast as they bloom, but they never touch a Crocus of any other colour, and the mice never have eaten the bulbs of any other colour than those of the yellow Crocus. I have suffered severely from attacks of both kinds during the present year.—MARTON.

HINTS ON LANDSCAPE GARDENING.—No. 3.

VILLA GARDENS.

ATTEMPTS to introduce extraordinary features, or to impart much variety to small gardens, so often end in failure as to induce one again, and yet again, to repeat the warning not to attempt great things with small means. When you do introduce a novel feature especial pains should be taken to render it and its surroundings in harmony with each other. Take for example a pool or little pond of water, for which there is such a general liking. When made in such a conspicuous position as to form the centre and key of the little garden it has such a toy-like incongruous air as to call forth the familiar exclamation, "How very cockneyfied!" Such failures are only too common, yet I have also seen several pools treated with considerable success, and which were really ornamental, simply because they were kept well in proportion to the size of the garden, and were so placed as to present a natural appearance.

It has already been shown how often the desire to secure a certain degree of privacy leads to a hurried indiscriminate planting of tall fast-growing trees, which in the end prove literally a "growing evil." The pun may serve to impress the fact upon the minds of my readers. The site of most small villa gardens is just a bare level expanse, and the owners may

not unreasonably exclaim, "If we do not plant trees how are we to obtain shelter and seclusion?" I reply, By all means plant trees, but do it so as to impart beauty and grace. If such be your aim you will not care to enclose the entire garden with them; there must be a break—openings to which the rounded outlines of the tree clumps pleasantly lead the expectant eye, which there finds that agreeable variety of which it is always in search, presenting itself under the guise of high raised shrub-clad banks formed of the soil excavated to make the pond and to cause the lawn to slope gently down to its margin. By this simple method we obtain a hollow for a pond; we shut in the grounds effectually with the banks, which we clothe

with shrubs and trailing plants, and thus add two or three important features to the garden. It may be that we shall rest content with a pond pure and simple, yet let us not fail to remember that a fountain is quite admissible in such a position, or that many plants which thrive in water are ornamental. Surely everybody caring for flowers must admire our native Water Lily, *Nymphaea alba*; then there is the pretty Cape aquatic *Aponogeton distachyon*, with its narrow leaves and curious white flowers; the yellow *Villarsia*: the Water Violet. *Hottonia palustris*; the stately Lily of the Nile, *Calla aethiopica*, all growing freely in 2 or 3 feet of water. In more shallow depths by the margin we may have Bog Bean, Flowering

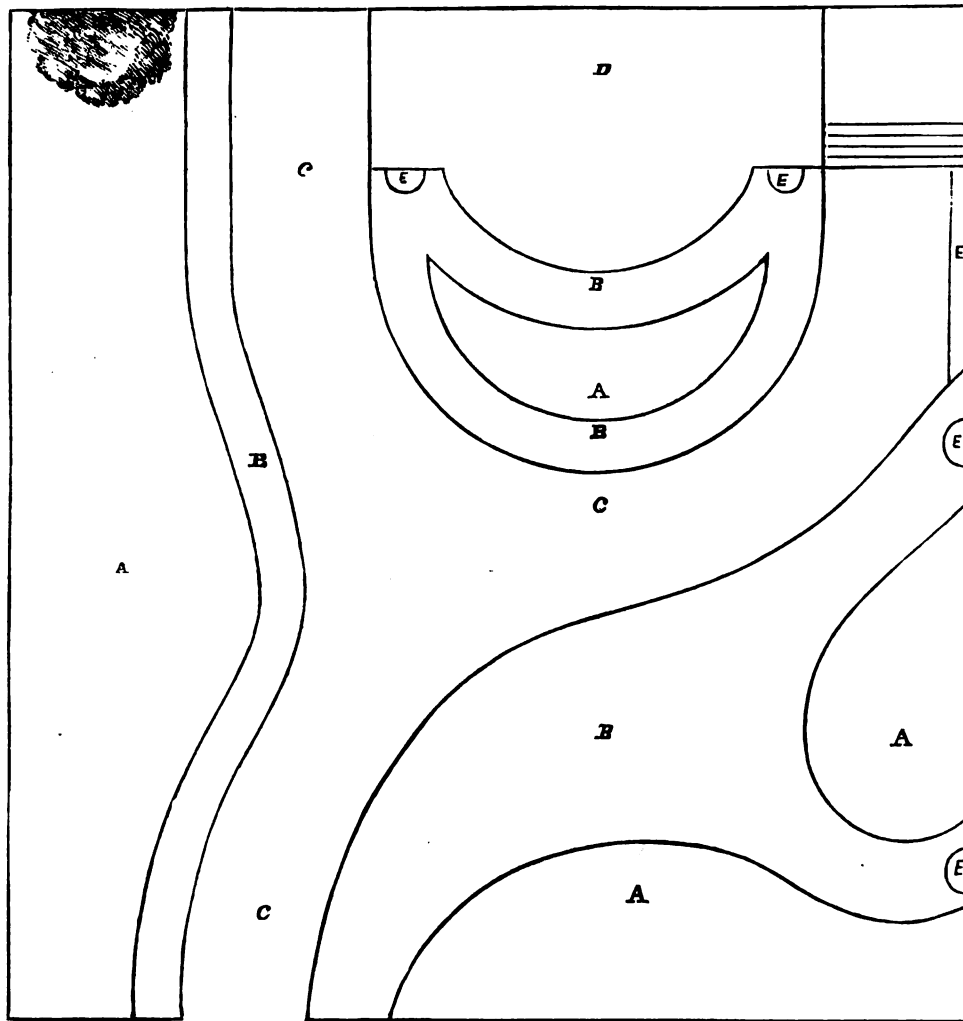


Fig. 40.—PLAN FOR VILLA GARDEN.

A, Flower beds; B, Turf; C, Gravel; D, House; E, Spaces for climbers.

Rush, Loosestrife in two or three varieties, and the yellow Water Iris, with Marsh Gentian, Ivy, Campanula, and Musk to enrich the margin itself. There is always so much risk of water plants becoming crowded and overgrown that it is best to plant a few such choice plants as those enumerated than a crowded collection, and even these must be watched and kept within bounds, for they increase and spread with such rapidity as to cover a considerable space in a year or two.

More popular even than fountain or pond are flower beds, and certainly much less difficult to make; yet here, too, failures in the form, position, and number of the beds are very common. Lying beside me upon my desk are two plans of beds in small gardens sent for criticism. One of them (fig. 40) is so elegant that with only a trifling alteration I send it for publication, and would strongly commend it to the notice of everyone having a small front court or enclosure which they wish to make gay with flowers. It is a remarkable example of how much may

be done to render a small square enclosure really ornamental being quite devoid of stiffness or formality, every line being an easy flowing curve pleasant to the sight from every point, and this I regard as perfection in design infinitely more difficult of attainment than the production of fine effect from given points. The flower beds might of course be planted with dwarf flowering shrubs, Roses, and perennial flowers, with spaces for bulbs and annuals, which is much the best style when no means exist for raising a supply of bedding plants. The other plan is an extraordinary combination of squares, diamonds, parallelograms, and rhomboids, admirably adapted for a series of geometrical problems, but unsuitable for the position given them upon turf. I may usefully note here that the best of all forms for a flower bed upon turf is a circle, and if more beds are wanted make more circles. A large bed surrounded by a chain of smaller circles or several large beds in well chosen positions are quite certain to prove more orna-

mental than the most elaborate geometrical design. The plan published is drawn to a scale of one-eighth of an inch to a foot ; but with certain modifications it is adapted to plots of ground having from 20 to 50 feet of frontage.—EDWARD LUCKHURST.

DRACÆNA BAUSEI.

VISITORS to the chief horticultural exhibitions in London and Belgium are well acquainted with the remarkable collection of *Dracenas* raised by Mr. Bause in Mr. Wills' nursery

at Anerley. There are, however, hundreds of gardeners who have not had an opportunity of inspecting those plants, the names of which and the honours they have won are so familiar to all readers of gardening literature.

It will be remembered that some time ago Mr. B. S. Williams purchased the stock of six of the varieties raised by Mr. Bause—namely, *D. Bausei*, *D. Berkeleyi*, *D. Frederici*, *D. Scottiæ*, *D. Renardii*, and *D. Mrs. Bause*. The former of these by the courtesy of Mr. Williams we figure as a typical representative of the celebrated collection. It is selected because it stands



Fig. 41.—*DRACÆNA BAUSEI*.

first on Mr. Williams' list, and because it bears the name of the successful hybridist who was so fortunate in raising the plants referred to.

D. Bausei is not submitted as being the "best of the batch," for in plants possessing such varied points of beauty, and such great dissimilarity in habit of growth and colour, varied estimates must necessarily be formed as to the comparative merits of the several varieties. Some of the "*Anerley Dracenas*" are as far more stately as others are more elegant in habit than the variety figured, while a few may surpass it in richness of colour, but not many, if any, of them possess a greater combination of attractions. In character it is massive yet elegant, and its colours are rich and striking. The plant is comparatively dwarf in habit, with broad arching foliage 4 inches in diameter. The leaves are dark bronze in colour heavily margined with crimson, those in the centre of the plant being further suffused with bright rose. It is altogether a brilliant

plant and cannot fail to prove of great value for various decorative purposes ; but, indeed, all the varieties are valuable for house embellishment, and some of them are eminently suitable for public exhibitions.

ASPARAGUS CULTURE.

I HAVE carefully read over "*A NORTHERN GARDENER'S*" remarks on page 217, and, like many of his previous articles, his notes on Asparagus are entertainingly written ; but however correct his mode of Asparagus culture may be, his inferences as to the result of growing Asparagus in the ordinary way as detailed by me are entirely wrong. Superior Asparagus I have no doubt is cultivated with the rows 3 feet apart, but I hold that Asparagus which could never be rightly termed inferior can be grown, and is grown, in this and many other gardens in beds as I have described.

Your correspondent puts great pressure on having the rows 3 feet apart and 18 inches between the plants to secure and insure vigorous growth; but anyone considering the matter practically will understand at once that planting wide is only a third or fourth-rate power in producing superior results. In Asparagus culture and with all other vegetables I always find that a soil of superior quality will always give similar results let the plants be planted as they will, but in a poor soil wide planting will never make up for a deficiency of nourishment. Asparagus planted 1 foot apart would produce as strong stems as those planted 3 feet provided the soil was rich enough. It is only a question of soil.

"A NORTHERN GARDENER" has omitted to say how many stems are allowed to grow up from each crown or stool. One thing is evident—they will require to be very few, or how is crowding avoided with the stems 8 feet high and the plants only 18 inches apart from each other in the row? This allows each plant only 9 inches to expand on two sides, and yet your correspondent asserts that crowding the stems is the ruination of Asparagus. No doubt "A NORTHERN GARDENER" thinks that by saying that overcrowding Asparagus is as injurious as overcrowding Vines he has made a strong point in favour of his wide planting; but it is a very different thing to crowd Vine shoots and leaves together in a close house where sun and air cannot penetrate to what it is in the case of Asparagus, where every shoot, no matter how close they are growing, bends with the wind and is openly exposed to the sun.

I am not an advocate of, nor do I practise, such wide planting of vegetable crops generally as many recommend, but at the same time sufficient space is given to every crop to develop without producing monstrous or coarse vegetables. I do not assert that superior Asparagus cannot be grown by wide planting, but I must say that disparaging remarks on having the rows 1 foot apart are quite a mistake. As to the recommendation of market Asparagus, I may say that our family do not like it at all, and they have told me repeatedly that the Asparagus they obtain in London is much inferior to what they have here.—A KITCHEN GARDENER.

WEATHER IN ABERDEENSHIRE.

DURING the last days of March and first days of April locomotive traffic of every kind has been interrupted generally throughout the north. On the 1st inst. the general fall of snow had amounted to about 18 inches. The frost has been very severe. On the mornings of 28th and 29th March we had 20°, and since then almost every night it has ranged from 10° to 17°. Apricot blossoms and Pear blossom buds have suffered severely. The leaves of the Bay and Portugal Laurels also seem a good deal affected. Here we have been much troubled with birds scraping and tearing in the south border whenever it was bared by the sun. Threatened starvation seems to have rendered them desperate.—JOHN HARDIE, *Logie Mar, Tairland.*

NOTES FROM MY GARDEN IN 1877.—No. 3.

VEGETABLES.

I HAVE often remarked on the curious fact that although we are here a good deal sheltered, and the soil of my garden is not cold, we are yet much later than other places a few miles more inland. It is to be attributed, I suppose, to the east winds and our lying much exposed to their influence. This year the same backwardness has shown itself, and thus one cannot very well look forward to early crops or boast of having Peas in before the middle of June; but on the whole my garden is, I think, favourable for their growth, but not for monsters. This is a style of gardening I have long since discarded. I do not (in fact never did) see the use of enormous vegetables. Cucumbers a yard long, Celery as big as a gatepost, Broccoli a foot across, have no charms for me. In all such cases flavour and quality are, I believe, sacrificed to size. Unhealthiness is engendered; and as all who have had to do with Potatoes know full well, the larger the Potato the more likely is it to be diseased. So it is in other vegetables, and a moderate-sized one is much more likely to commend itself to the palate than a huge overgrown specimen which figures well on an exhibition table, but not so well on the dinner table.

There has been somewhat of a lull in the production of new Peas. There are indeed so many good ones that it seems well nigh impossible to excel those which we already have. The only new one I had last year, and an excellent Pea it is, was Sutton's Prince Leopold. I depended for my supply on the

following—Ringleader and Sangster's No. 1 for the first crop, Dr. Maclean and Sutton's Improved Princess Royal for second crops, and Sutton's Giant Emerald and Duchess of Edinburgh for later crops. Early Peas were with us a failure, the long-continued cold and dry weather preventing them coming to maturity. The main crops were excellent, but the later were caught by mildew. All these are well-known varieties, but I cannot sufficiently recommend for flavour Giant Emerald. Not that it lacks the other requisites of productiveness and robustness in habit; but as, in my judgment, these are very often obtained at the loss of flavour, which is the first point in a good Pea, we ought to be glad to have so good a Pea where all are combined, and in my garden it has resisted in a remarkable degree the attacks of mildew.

Potatoes, as everyone knows, were a ticklish crop in 1877. I never was so late getting mine into the ground—fully two months later than I have been this year. This did not, however, prevent me from lifting them as usual in August, although many would have said that it was folly to do so in the unripe condition in which they were, but I still preferred that to leaving them to be attacked by disease; and the event justified my doing so. I have not had half a bushel of bad tubers the whole winter. Regents have kept good up to the present time (March 18th); and while my neighbours had to tell of losses, amounting in some cases to one-half of their crop, I have managed to escape. I had not any really new sorts on trial. Magnum Bonum bore out its character of being really an acquisition, and on my chalky soil did well and bore a heavy crop. Flourball, on the other hand, I have been obliged to discard, for the soil does not suit it. As yet I can find nothing to beat Prolific, Snowflake, Lapstone, Yorkshire Hero, and Regent; to these I would add Schoolmaster and Magnum Bonum. My good friend Mr. Radclyffe has sent me this year some Gryffe Castle, which I know to be a good and early Regent, and I have a few new seedlings on trial, but there is great difficulty in excelling those I have already named. As to disease we are as much in the dark as ever about it, at least so far as preventing or curing it is concerned. There are one or two things which seem to me helpful in warding it off, and these are first not to go in for size, for a large Potato seems more liable to disease than a smaller one. Let there be no heavy manuring, and what is done let it be done in the autumn previous. Then the oft-repeated tale, plant early and lift early. And although there is nothing very scientific in these directions, yet where they are adhered to I believe there will be as little of it as can well be.

In Cucumbers there has been nothing remarkable amongst new varieties; but there is one which Mr. B. S. Williams sends out—Woolley's Telegraph, which is one of the very best and most prolific that I know and suits admirably for a frame, a point in which many otherwise valuable sorts fail. Those of us who cannot afford houses have been oftentimes disappointed in growing varieties which at first promised well, but afterwards, owing to their requiring more constant and regular heat, have done nothing; and then, when it is too late and the crop gone for another year, the mistake is found out; but this is most hardy, and bears a heavy crop of good-sized Cucumbers, and with Duke of Connaught (white spine) a good supply is sure.

I have been disappointed in Witloof as a salad plant. With me it was not at all equal to the Barbe de Capucin which I used to obtain from Vilmorin's, nor did it give so large a supply of salading. I have not tried it as a substitute for Sea-kale, being quite satisfied with my supply of that vegetable.

In Broccolis the only noticeable sort which I have not grown before was Sutton's Late Queen. It deserves its name, for it is the latest of all, heads being available up to the middle of June. It is, moreover, dwarf in habit and the heads are well protected. When seeds of Broccoli can be obtained true to name there is a chance of getting a supply all through the winter and spring months; but that is the difficulty, and all kinds seem to get mixed together in hopeless confusion.

I have frequently told of the impossibility of growing Tomatoes in our neighbourhood owing to the attacks of disease. Last year I succeeded somewhat better, but it was simply by picking them the very moment there was the least appearance of colour and then allowing them to ripen indoors, for the disease again made its appearance and any that were left on rotted. I have seen in the orchard house of a friend lately Tomatoes planted out in the border, trained on a trellis, and bearing a succession of fruit from June last up to the present time. They are now making a fresh start, and will continue

to bear until the plants of the year are strong enough to produce fruit. I have not seen them grown in this way before, but as the same mode is adopted with Cucumbers there is no reason why it should not answer elsewhere as it has done in this instance.

Such are the few facts which in my last year's experience have seemed noticeable. That they are not more numerous may in one sense be an advantage, as an indication that the rush of novelties is not quite so strong as it was, and that some of the older sorts of vegetables are reasserting their place from which they had been ousted by their newer rivals.—D., *Deal*.

ON THE CYCLAMEN.

[By S. JENNINGS, F.L.S., &c. Read at the Royal Horticultural Society's Meeting, 19th February, 1878.]

TWO of the hardy species, *Cyclamen Coum* and *hederæfolium*, are mentioned as having been in cultivation in Gerard's garden so long ago as 1596, so at least says Mr. Daydon Jackson in his identification of Gerard's species. *C. persicum* seems to have been introduced by Sibthorp in 1731 from the Isle of Cyprus. In "Curtis's Botanical Magazine," which was commenced in 1790, the fourth plate in the first volume is a very fair representation of *C. Coum*, which is said to be found growing in woods and shady places in Italy and Germany; it is also noted that it is a very early flowerer. The plate in Curtis represents a tiny little plant with small rosy flowers on rosy peduncles, leaves round and unvariegated. The original *C. persicum*, though more beautiful with its pure delicate petals and graceful habit, is a long way behind the magnificent specimens we have so often seen in recent years, to which I shall allude presently.

As a genus the *Cyclamen* is confined to the countries bordering on the Mediterranean—S. Europe, W. Asia, and N. Africa. It can scarcely be considered an English plant, though it may be found growing wild in some Kentish woods. It is almost certainly naturalised, the seed having been originally carried from some garden, and thus it has established itself as in a state of nature. The *Cyclamen* is a very worthy member of the natural order Primulaceæ, which contains so many popular favourites. Amongst other distinctions the chief points of note in examining flowers belonging to this order are:—1st, That the corolla is invariably monopetalous—that is, the petals are all united together in one piece as a tube, the extremity of which is, however, usually divided into several lobes or segments, usually five in number, so that in speaking of the petals of a *Cyclamen* we mean the separate segments of the united corolla; and 2nd, That the stamens are inserted upon the corolla, and opposite to the several lobes. There is also the capsuled many-seeded fruit. In the genus *Cyclamen* the segments of the corolla are always reflexed or doubled back, and sometimes twisted.

There appears to be no little confusion in the determination of some of the species, as there unquestionably is a misapprehension amongst the trade both here and abroad on the subject of nomenclature; even our best authorities differ. It is most desirable, therefore, that a general understanding be arrived at, if possible, whereby it shall be recognised what really are the points of difference between the various species. With the kind aid of several well-known *Cyclamen* growers I have made an attempt in this direction, which may perhaps be of some use until a better arrangement can be supplied. Here at starting a serious difficulty meets us, Upon what are we to base our distinctions so that no mistake can occur, so that when a plant is shown it may be possible to say definitely this is *hederæfolium*, or *ibericum*, or *vernum*, as the case may be? The leaves furnish one of the main distinctions, but only in conjunction with other features. Many authorities lay great stress upon the colour of the upper and under surfaces, but this is fallacious; and not much less so with the form of the leaf. Take *hederæfolium* for example: you have ovate, cordate, hastate, and sub-hastate leaves, and all may be produced from the seed of a single plant. Leaves may therefore assist in identification, but cannot alone determine it. We must look to other points to assist us in our task.

The corm is a very important feature, and one which deserves consideration—its shape, its habit, the mode of issue of the fibre, a careful examination of which will probably throw valuable light on this vexed question, for if we consult the authorities we shall most certainly be led astray in many instances; for example, in the "Bot. Mag.," plate 1001, is figured a plant under the name of *C. hederæfolium*, which on

examination proves to be *vernum*. The same plant is figured in Sweet's "Fl. Garden" as *repandum*, pl. 117; and again the same writer, pl. 9, figures *C. ibericum*, but calls it *vernum*; and later writers, copying from the earlier ones, have only perpetuated these errors. In all, though many more names have been given, for all practical purposes the number of species of *Cyclamen* may be reduced to six—viz., *C. Coum*; *C. ibericum*, incl. *C. Atkinsi*; *C. vernum*, syn. *repandum*; *C. europæum*; *C. hederæfolium*, with its geographical forms—*C. africanum* or *macrophyllum*, and *C. græcum* or *latifolium*; *C. persicum*. There may be, I should say there are, other little-known species to which at present I have not had access.

There is another point of distinction worthy of note, illustrating as it does the fact that every season has its *Cyclamen*. *Persicum* and *vernum* cheer us in the spring with their bright vivid flowers. *Europæum* comes on later, and may well be distinguished as the summer-flowering species. In the autumn we have *hederæfolium*; and when that is done, all through the winter the chain is completed by the little *Coum* and *ibericum*, which are then in full bloom. This is a very marked distinction, by the aid of which closely resembling individuals may perhaps be determined with certainty.

There seem to be four distinct habits of the corms or tubers, as follows:—Corms smooth, roots proceeding from the centre of the under surface—*Coum*, *ibericum*, *vernum*. Corms rough, roots proceeding from the base of the tuber, but more or less from all parts—*europæum*. Corms large, rough, fibrous, roots proceeding from all parts of the tuber—*persicum*, *hederæfolium*. There is a form of *hederæfolium* with a very distinct habit of tuber. The roots proceed from one part of the under surface, a little removed from the centre of the corm, whilst the growing point on the upper surface starts from a corresponding point on the opposite side of the centre, and this peculiarity is said to be constant. I have examined specimens, but my personal knowledge of this variety is not yet sufficient to enable me to do more than allude to it at present.

We now come to the leaves, of which there are four main variations in form and habit:—I.—Round or reniform. Not marbled—*Coum*. Marbled on upper surface—*ibericum*. Sometimes inclined to be cordate—*europæum*. II.—Cordate, crenulated on margin, upper surface marbled—*persicum*. III.—Angular, toothed, broadly marbled on upper surface, leaves rising with the flowers—*vernum*. IV.—Angular, lobed, marbled, leaves succeeding the flowers—*hederæfolium*.

Finally, as a less reliable guide, we have fragrance, but here there does not seem to be any unchangeable or distinct habit. *Europæum*, *vernum*, and *persicum* are said to be always fragrant. So they are in nature, but in cultivation this very desirable quality is in great measure lost, and in the large otherwise improved *persicums* entirely so. *C. Coum*, *ibericum*, and *hederæfolium* are always scentless, except the two forms of the last—*africanum* and *græcum*, which are sometimes fragrant.

We will now proceed to a closer examination of the six species I have named.

I. *C. COUM*.—A native of Italy and Germany. Blooms from January to March. Colour bright rosy-red, with a white band more or less distinct round the corona. Leaves always round, dark green on the upper surface, decided purple on the reverse. No markings. Tubers round, compressed, smooth, roots descending from the centre of the under side. It is very hardy, and flowers freely in the open air. There is but very little variation in this species, which can be easily recognised, for no other *Cyclamen* has its small plain round leaf or short little flower.

II. *C. IBERICUM*.—A very near relation to the foregoing, so near indeed that but for the difference in the leaf it might easily be mistaken. I have a white variety of *C. Coum* in which the plant is unquestionably *Coum*, but the flower is just as certainly *C. Atkinsi*, a white variety of *ibericum* to which I shall recur. Leaves cordate, they are seldom round, always marbled with lighter colour on the upper surface. The tuber is similar in habit to *C. Coum*, but the whole plant—corm, leaves, and flowers—is bolder in habit.

Mr. Atkins of Painswick, a gentleman who has spent many years of his long life in horticultural pursuits, raised a very beautiful variety of this species with pure white flowers, which some have said to be a hybrid between *C. Coum* and *C. persicum*. This is not impossible, though there is a strong belief that the plant known as *Cyclamen Atkinsi* is no more than a white seedling of *ibericum*. The flowers are certainly finer in form than either *C. Coum* or *ibericum*, a feature which

doubtless gives weight to the opinion that it is a hybrid; but when it is remembered how great has been the improvement effected in *C. persicum* during the last few years through careful selection and cultivation, it need scarcely be a matter of surprise that the other species respond to like care and develop into much finer forms than any we have yet seen, of which, with due deference, I believe *C. Atkinsi* to be an example, and not less an encouragement to cultivators to direct their attention to these useful and hardy plants. I give both opinions on this subject, and though I incline to the latter I desire to give the former due prominence. In some catalogues there are named varieties of *C. Atkinsi*—as, for example, *rubrum*, *roseum*, &c.—but it is certain that the founder of the variety will not admit them to be *C. Atkinsi* at all. Mr. Tyerman says that a very interesting series of Iberian specimens of *C. ibericum* have lately been added to the Royal Herbarium at Kew, which quite confirm the identity and variableness of this plant.

(To be continued.)

NORTHERN SPY APPLE—GLADIOLUSES.

IN reply to "A COUNTRY PARSON'S" inquiry allow me to state that I had a Northern Spy Apple tree which did not bear, consequently I moved it in the autumn of 1875. The following summer it had rather a struggle for existence, but the moving had the desired effect, for it produced a fair crop last year and is showing well for bloom this year. If "COUNTRY PARSON'S" trees are not large I would recommend him to replant them next autumn; if too large, open a trench on one side and prune the roots in October. The fruit last season was fine and useful for cooking, but it was not a good season for judging dessert fruit, so I cannot speak as to that.

I am sorry "D., Deal," has had such bad luck with his Gladioluses, but the last two or three seasons have not been very favourable for them. I am not a Gladiolus grower, but used formerly to have a few good flowers; lately, however, they have been miserable failures. With regard to the disease, I think it arises from some defect in the constitution of the plant. They want weather made on purpose for them. If as much attention had been paid to their hardiness as to the beauty of the flower there would not be so many complaints. Perhaps if "D., Deal," were to go back to some of the older varieties he might be more successful, but I would plant them in a fresh situation.—AMATEUR, Cirencester.

SCOTTISH HORTICULTURAL ASSOCIATION.

THE ordinary monthly meeting was held on the 2nd inst. in the Hall, 5, St. Andrew's Square. There was a large attendance of members. The President in the chair. Twenty new members were enrolled. In commencing the second year the Chairman in some introductory remarks reviewed the work the Association had done in the first year of its existence. Founded on sound principles, and managed in a quiet way, it had reached a stability which the most sanguine of its members could not have predicted twelve months ago. In its endeavour to disseminate gardening information it had been largely aided by the horticultural press. The second session was being entered upon under encouraging circumstances with a rapidly increasing membership. The Chairman also dwelt upon the great benefits to be derived by the younger members from such an Association, and concluded by referring to the great stimulus given to horticulture by the leading gardeners a quarter of a century ago, when Chiswick attracted so much attention.

Mr. McAdam (son of Dr. McAdam, lecturer on chemistry), gave a very instructive lecture on the food of plants. He went into the various phenomena of vegetable life, described them in detail, and showed how the properties came to be extracted from the soil. With this process going on the earth became exhausted of those substances that support vegetable life, so that human ingenuity and common sense were brought to bear on the question how nutritive matter taken from the soil was to be returned. This question is answered by the restoring of decayed animal substances and mineral matters to the soil—in fact, that in order to keep up a system of fertility there was required a constant restoring of nature. These restoratives take the form of coprolites, the fossil remains of bones, muriate of potash, common salt, sulphate of magnesia, sulphuric acid, &c. Mr. McAdam mentioned the uses of these matters, defined their properties, and showed samples of the different kinds of artificial manures. He concluded his able paper by promising to pursue the subject further on another occasion. Mr. McAdam received a hearty vote of thanks for his lecture. Mr. Hugh Fraser then in a short paper described the *Boronia megastigma*. Mr. James Spiers, Haddington, exhibited an *Auricula*, and Mr. George McClure a *Cineraria* flower. The

report of last year with syllabus for present session was put into the hands of members. A letter was received from Mr. John Webster, Gordon Castle Gardens, saying that he would be glad to send some "Remarks upon Peach Culture in the Open Air in Scotland," to be read at a future meeting.—ALEX. MILNE, Assistant Secretary.

WORK FOR THE WEEK.

KITCHEN GARDEN.

FOR affording a supply of Peas in August sow now Veitch's Perfection, Dr. Maclean, and Maclean's Wonderful, which combine quantity with quality, and are from their sturdy habit and moderate height, more suitable for exposed situations than tall varieties. Of late varieties Maclean's Premier and Omega are of moderate height, and are superior alike in cropping and quality. Ne Plus Ultra is one of the best late Peas. If sown at the same time as Peas of the Veitch's Perfection type it will succeed them. Another sowing of Longpod and Windsor Broad Beans also should be made. A sowing of Lettuce should be made every fortnight or three weeks, so as to maintain a succession. We sow in drills 15 inches apart, and thin the plants to 12 inches apart, choosing an open situation and rich firm soil. By this plan the plants are less liable to run to seed than when they are transplanted, and much labour in watering, &c., is also saved. Neapolitan is the best Cabbage Lettuce for summer, and the best Cos variety is the Alexandra White. Stanstead Park Cabbage Lettuce and All the Year Round are now furnishing good heads, to succeed which look over the Cos varieties, and tie up the earliest when the plants are dry. Broccoli should be gone over frequently in frosty weather, breaking the leaves over the heads of such as are coming into use. In southern and warm localities a sowing of Kidney Beans may be made on a warm south border. We sow a row 1 foot from the base of a south wall, which gives earlier produce than those sown across the border, the protection given the fruit trees protecting also the Beans. Osborn's Forcing is the best for sowing in front of the wall; it is good also for the open, as is Williams's Prolific, Negro Longpodded, and the fine variety Canadian Wonder. The very early Celery, if it has been grown-on in gentle heat near the glass and duly attended to, will be shortly ready for planting, and should have air rather freely; but avoid chilling the plants too much, as that will give them a check, causing them to "bolt." To receive them the soil should be taken out a little less than the size of handlights and 1 foot deep, placing 6 inches of thoroughly decomposed manure in the bottom, and 3 inches of soil over it to plant in. Four plants may be planted equidistant under each handlight, keeping them rather close until established, then admit air more freely, yet keeping the glasses on, and closing at night until genial weather ensues.

Forcing Department.—Sow seeds of Vegetable Marrows in gentle heat; when the second leaves appear pot the plants off singly, and grow them on, having them strong and well hardened off for planting out under handlights in May. Long White is the best for general purposes, Custard and Moore's Vegetable Cream being prolific and of superior quality. Attend to the thinning of successional crops of Carrots, &c., in frames, watering and giving air freely according to the weather. Lettuces in frames sown early for planting out should be planted forthwith, they having been well hardened off, but they will come in much earlier if undisturbed; indeed, Early Paris Market is commencing to heart already. Potatoes before being earthed should have a good watering with liquid manure; those having tubers of an useable size are best kept rather dry for a few days before they are taken up. Pot off and shift into larger pots Tomatoes as they require it, keeping them near the glass so as to have them short-jointed. Those in the fruiting pots will require attention in stopping and tying; keep the plants to one stem, removing all laterals as they appear, stopping the leader when four or five trusses of bloom are formed, and when the fruit is fairly set giving the plants liquid manure twice a week. Earth-up Cauliflowers under handlights, and water them with liquid manure.

MUSHROOMS.

After the middle of May Mushrooms do not succeed well in a Mushroom house, they being liable to be maggoty. Beds may be made in an open shed with a north aspect, but such beds produce Mushrooms inferior in quality to those borne by beds in the open air. A dry situation should be chosen for the beds, and elevated so that water after rains will pass away freely. Shake out the droppings from fresh stable litter, removing the coarser strawy parts of the litter, retaining sufficient of the shorter material to bind the whole into a solid mass. Place the long litter, or a portion of it, at the base, and make the beds somewhat loosely, and when fermentation takes place make the manure solid by treading and beating. When the heat declines to 90° in the interior of the bed, or 75° at the depth the spawn is to be placed, the bed should be spawned, inserting pieces not less than an inch square and 9 inches apart, covering them 2 inches deep and beating firmly after insertion. Cover the beds with a thin layer of fine straw or coarse hay, and in about ten days' time double it. In twelve to fifteen days after spawning examine the bed to see if the spawn

has commenced "running;" if it has, place a covering 2 inches in thickness of good turfy loam on the bed, and beat it firm. If the soil is not sufficiently moist for binding water it well, so that it may be made smooth with the back of the spade, covering it with the litter as before. In about six weeks the Mushrooms will be showing, and will require attention in watering if the surface of the beds is dry, removing at the same time any portion of the covering material that has decayed, replacing with fresh. Straw is preferable to hay for placing on the beds, as it more effectually throws off the wet. We find a light wooden framework covered with frigi domo very serviceable during rains, and with such protection only a very slight covering of hay or litter is required.

HARDY FRUIT GARDEN.

March came in like a lamb and went out like a lion. Frost followed by snow set in on the 24th of the month, and continued more or less during the last week. During the night of the 30th the temperature fell to 19°, or 18° of frost, and at 10 P.M. on the 31st it fell to 16° at 4 feet from the ground, snow having fallen from 10.30 A.M. to 8 P.M. Our canvas coverings had not been withdrawn, so that they were coated with the snow, which gave us hope of safety for the Apricot and Peach blossom, the former being fully expanded and the latter just bursting. Upon lifting the canvas recently we were gratified to find that no injury had been done by the frost, and so far as we can see the Pear and Plum blossom is unhurt. Gooseberries appear none the worse, thanks to the snow, there fortunately being no wind to displace it. The snow afforded a valuable covering to orchard houses and unheated Peach houses, as it kept the temperature from falling lower than 80°, and no apparent injury has been done to the blossom, which promises to set freely.

FLOWER GARDEN.

Hardy annuals for the principal summer display should now be sown. They are indispensable for borders, but often have a "weedy" appearance from being sown too thickly and neglected in thinning. In heavy soil it is preferable to place about an inch thickness of fine soil where the patches are intended to be, and in this sow the seed, covering it lightly. No garden should be without *Alyssum maritimum*, *Calliopes*, *Candytufts*, *Centaurea Cyanus*, *Centranthus*, *Chrysanthemum coronatum* and *Dunnett* vars., *Clarkias*, *Collinsias*, *Echscholtzias*, *Godetias* (especially *Lady Albemarle*), *Larkspurs*, *Leptosiphons*, *Linum coccineum grandiflorum*, *Lupins*, *Nasturtiums*, *Nemophilas*, *Silenes*, *Senecio elegans* var., *Viscaria*, *Virginian Stock*, and *Whitlavia*. *Mignonette* should be sown in quantity. Rose borders and beds always attract visitors. The ground between the Roses should be sown with *Mignonette*, which will come into flower when the Roses are going off; indeed, patches of *Mignonette* should always be distributed in borders adjoining walks frequented by ladies in the evening. Night-scented Stock (*Mathiola bicornis*) and other plants with sweet-scented flowers or foliage are suitable for similar positions. Half-hardy annuals, such as *Asters*, *Ten-week Stocks*, *Phlox Drummondii*, *Ageratum*, *Clintonias*, *French and African Marigolds*, *Palava flexuosa*, *Portulacacas*, *Salpiglossis*, *Scabious* (double), *Schizanthuses*, *Zinnias*, and *Helichrysums* may be sown in frames either with or without heat. A warm situation should be chosen. Fermenting manure may be placed in the frame to within 8 inches of the glass and be covered with 8 inches of loam. The seed should be sown thinly in drills 2 inches apart, keeping the lights close until the seedlings appear, when air should be admitted moderately. In case hot dung is not at hand a few inches of soil may be placed in the frame, the seed sown, the lights put on and kept close, and sturdy plants may be raised. The seedlings are pricked off into cold frames when the second leaves are fairly formed, keeping the plants rather close and shaded until established. Very much better plants are had in this way than those coddled in heat. *Alströmarias* are fine for cutting; seed should be sown where the plants are to remain.

Plant double *Pyrethrums*; their flowers are little inferior to *Asters*, and come in when showy flowers are scarce. A few select varieties are *Ne Plus Ultra*, *Delicatissimum*, *Galopin*, *Striatum plenum*, *Princess de Metternich*, *Boule de Neige*, *Carminatum plenum*, *Impératrice Charlotte*, *Progress*, *Roseum Perfectum*, *Brilliant*, and *Gloire de Stalle*. *Pentstemons* are very showy, and should be grown in every garden. They are very useful for cutting. *Hollyhocks*, if fine spikes are wanted, must be planted at once; also *Gladioli*, though a few may be planted at intervals up to May to afford a succession of blooms. *Violets* in frames, after the plants are well hardened off, to be taken up, have the soil shaken from them and be divided, preserving only rooted suckers and runners for planting out in an open situation in rich soil. The old crowns may be retained if there is a deficiency of stock, removing all offsets and shortening the root stems. The plants should be planted 1 foot apart every way, but small growers such as *King* may be planted 9 inches apart. The best *Violets* in singles are *Victoria Regina* and *White Caesar*; in doubles, *New York*, *De Parme*, and *Queen*. The plants must be well watered; all weeds and runners must be removed as they appear. Plantations for the open ground may be made as the plants go out of bloom. Ivy against buildings, &c., should be clipped. It ought to be done annually, or at most every other year, if only for

neatness and for imparting a trim and fresh appearance. Proceed with the pruning and planting of evergreen trees and shrubs. Prune Roses for late bloom. Complete the planting of *Violas* and *Pansies*, so as to have them well established before dry hot weather sets in. Continue the planting of hardy edging plants, and if the groundwork, &c., be complete *Dell's Beet*, *Chilian Beet*, *Perilla*, *Saponaria*, and *Golden Pyrethrum* may be sown where the plants are to remain. *Alternantheras*, *Iresines*, *Colusesas*, and *Mesembryanthemum cordifolium variegatum* may yet be propagated, and if there is a scarcity of stock of any other bedding plants their propagation must be proceeded with at once. Prick-out or pot-off such plants as require it, but avoid coddling, bringing them up hardy, not aiming so much at size as a well-branched sturdy habit. Plants which are employed for ornamenting baskets, trellises, rooteries, &c., in summer should now have attention, potting-off and growing-on cuttings or inserting them, and sowing seeds in gentle heat of *Tropaeolums*, *Cobaea scandens*, *Maurandya*, *Convolvulus major*, &c. *Calceolarias*, *Verbenas*, *Lobelias*, and other bedding plants of comparative hardiness may be planted-out in turf or sunk pits where they can be protected with mats, &c., in frosty weather.

FRUIT HOUSES.

Pines.—The suckers or plants which were disrooted and started early in March will now require attention. The pots require to be full of roots, but before the plants are root-bound shift them as advised in a former calendar, watering them a day or two previously so as to have the balls moderately moist when the plants are potted. They may be shifted into 9 or 11-inch pots according to the kind. Take advantage of the removal of the plants to examine the state of the bed, replenishing it if needed by the addition of fresh tan, mixing it with the old to a depth that will afford the temperature required—viz., 95° at the base of the pots until the roots reach the sides of the pots, when 90° is more suitable, especially to fruiting plants, which should now have the atmosphere well charged with moisture, syringing the plants overhead at closing except those in bloom. Ventilate at 80° a little, freely at 90°, and close the house at 85° from sun heat, using no more artificial heat than is necessary to maintain a night temperature of 75° to 70°, 5° lower in cold weather in the morning. Look over the plants twice a week, water those that require it.

Figs.—No other fruit tree produces surface roots so abundantly as the *Fig*, if measures be taken to encourage them by means of a mulch 3 or 4 inches thick of partially decayed manure given when the trees are fairly in growth. This if kept in a moist state will be full of active feeders by the time the trees need the most assistance in order to perfect the crop. Those trees that were started early and swelling-off the fruit should have a good watering with liquid manure. This is more particularly applicable to trees in pots, which require mulching or reversed turves placed upon the surface of the pots to encourage surface roots and increase the number of feeders for the absorbing of the stimulants applied in liquid form. Small kinds such as *Early Prolific* and *Early Violet* will soon be showing signs of ripening, upon which syringing must cease and a lessened supply of water given, or the fruit will be insipid, but keep those swelling the fruit well supplied with water until ripening commences. Temperature 65° to 80° at night, 70° to 75° by fire heat, 85° from sun by day, admitting air at 75°, closing at 80°. Attend to tying-in the shoots in succession houses loosely to allow for their swelling, and mulch the borders if not already done in successional houses.

Cherry House.—Syringe the trees twice a day, keeping the surface of the border moist, and not the surface only, for the border must have a good soaking of water, and in the case of a heavy crop and the trees not in a vigorous condition liquid manure should be applied. Ventilate very freely, commencing at 50° the minimum day temperature, maximum 65° from sun heat unless it rise higher with full ventilation, 45° to 40° by artificial means at night. When the shoots have made four or five leaves or joints pinch-out the point of those that are to form spurs, the terminals train-in without stopping, as also those which are required for furnishing the trees. Black fly must be destroyed by repeated fumigations; it is not so easily eradicated as green or brown aphids.

Strawberries in Pots.—The weather has been very unfavourable lately for plants in flower, which are liable to get chilled by an influx of cold air playing directly on the flowers, as is the case with plants on a level with the ventilators. It is well when the ventilators are above the plants or beneath the pots; in such position we have the *Strawberries* doing well, whilst those on a level with the ventilators are doing as indifferently. In dull and cold weather it is well to shake the flowers occasionally when the pollen is ripe, especially after a "blink" of sun, and where fine fruit is wanted it is desirable to thin the flowers, leaving from eight to a dozen upon a plant, and making choice of the boldest for retention, which are usually the first to expand, the centre fruit of the truss being usually the largest and not unfrequently cockscomb-shaped. It is also advisable to thin the fruit after they are fairly on the swell. We find that if we have a dozen or more fruit to a plant that about a third are fairly good fruit and

the others small, the total weight being no more than when the fruits are thinned to half a dozen. Fruit of 1 oz. weight should be aimed at, the larger the better. We have not exceeded 2 ozs. weight from pots, and only once had twelve fruit weighing a pound before June.

PLANT HOUSES.

Greenhouse.—Petunias now in small pots shift into larger, using a compost of good loam enriched with a little decayed dung and leaf soil, stopping the shoots to induce a branching habit. They are very useful after Pelargoniums are over, and continue until late in the season. Abutilon Boule de Neige is very useful and ever blooming. Cuttings of the growing parts strike readily in sandy loam in gentle heat, and if potted-off and grown-on in a light airy situation they will bloom freely when a few inches high. Bouvardias when rooted should be potted-off and grown-on in a moist atmosphere in an intermediate house, keeping them near the glass, shifting into larger pots as required, avoiding the extremes of cramping the roots or of overpotting. Cyclamen seedlings when they can well be handled should be carefully lifted and placed about 2 inches apart in pans, and be grown-on in a moist warm atmosphere. When they have formed three or four leaves pot them singly, keeping them in heat near the glass and slightly shaded. Old plants after flowering should be kept in a light airy position and be duly supplied with water until the close of May, when they may be planted outdoors or be stood on ashes in a cold frame. Cineraria seed for early bloom should be sown without delay. Earlier seedlings should be kept near the glass so as to keep the plants sturdy. They must not be crowded in the seed pan, but must be pricked off as they require it. Primula seed for the principal winter display should now be sown in gentle heat, also Balsams, which are fine summer ornaments. Other tender annuals should now be sown, not omitting Cockscombs and Celosias. Kalosantes will be advancing for bloom and must have due supplies of water, or they will cast the lower leaves and become unsightly. Plants of Solanum capsicastrum and Pseudo-Capsicum should now be cut-in closely, turned out of the pots, the balls reduced two-thirds and returned to the same size of pot, assigning them a light airy position. Syringe them overhead, but water the roots carefully. After May they may be placed outdoors in a sunny situation, or what is preferable, be planted out. Cuttings may be inserted; they strike readily in gentle heat, and should when rooted be potted off and planted outdoors in June. These with the old plants should be lifted in autumn and potted. Insert cuttings of Salvia splendens in loam and sand. Cuttings not over-strong are best. Place them in gentle heat, and keep them moist and shaded. Pot off when rooted, and grow-on in a cold pit. S. gessneriflora and S. Heerii are also good for flowering in winter. Hydrangea cuttings strike readily now. Select the young growing parts from the base of the plants, inserting them in small pots and placing them in moderate heat. H. hortensis, H. Thomas Hogg, and H. stellata flore-pleno are fine, the last doing well in small pots. Seed of Campanula pyramidalis may now be sown in gentle heat, and the plants being grown-on through the summer fine specimens may be had for next season's flowering. Lilliums advancing for flowering assist with weak liquid manure, affording them plenty of light. Plants in flower should be shaded from bright sun to preserve their colour and prolong their durability. Admit air freely, avoiding cold draughts, employing fire heat only to exclude frost.

TRADE CATALOGUES RECEIVED.

James Veitch & Co., Royal Exotic Nursery, King's Road, Chelsea, London.—*Illustrated Catalogue of New Plants and List of Soft-wooded and Bedding Plants.*

B. S. Williams, Victoria and Paradise Nurseries, Holloway, London.—*Illustrated Catalogue of New Plants.*

J. Linden, 52, Rue de Chaume, Brussels.—*Catalogue of New and Ornamental Plants.*

Rawlings Brothers, Old Church, Romford, Essex.—*Descriptive List of Dahlias.*

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

BOOKS (A Constant Reader).—We cannot tell the prices. Apply to your bookseller.

GRAPES DISEASED (W. M.).—They are severely attacked by spot. Thin the bunches and mulch and water the roots copiously with tepid water. Keep also the atmosphere sweet by early and careful ventilation, guarding especially against confined moisture.

GLOIRE DE DIJON ROSE IN POTS (H. G.).—We do not quite understand your question. Gloire de Dijon is so prolific as to surpass most other varieties in the quantity and size of the flowers, which it invariably produces both in and out of pots. We are unable to answer your question in reference to the Birmingham Rose Show.

DOUBLE CYCLAMEN (Sir Henry S. S. Bart.).—The flower you have sent us as having been "raised by Mrs. Hurst, wife of the gardener at Thorpe Constantine, Tamworth," is very good. The flower is large and compact, and contains eleven well-formed petals. The colour is also attractive—rose suffused with violet.

RAPHIOLEPIS OVATA (Mrs. C. M.).—The above is the name of the shrub of which you have sent us a spray. It is commonly called the Indian Hawthorn, and was introduced from China. It is propagated by cuttings selected when the wood is half ripe, and inserted in sandy soil under a hand-lit in a shaded place.

DAHLIAS (Romford).—Apply to your neighbours, Messrs. Rawlings, Old Church. They have a large collection varying in price from 4s. 6d. per doz. to 10s. 6d. per dozen.

AZALEAS UNHEALTHY (S. M. C.).—One great cause of the unsatisfactory condition of your plants is, judging from the sprays sent, immature growth. The shoots you have sent us were made late in the season and in a shaded place, and from growths made under such circumstances neither healthy foliage nor good flowers can be expected. Shorten all the diseased shoots at once, cutting them back to sound wood. Place the plants in heat and syringe them frequently, and if the roots are in a healthy state fresh growth will ensue. The plants must remain in a moist genial place until June or July, and must then be gradually inured to endure all the sun and air possible to ripen their wood. If you have not a light unshaded house for them, place them out of doors during August and September, or until the autumn rains occur. They require free drainage, firm peaty soil, and copious supplies of water.

RAISING NEW ZEALAND PLANTS FROM SEED (De Bosco).—Select suitable pots or pans, put in plenty of drainage, fill to within an inch of the rim with fine rich gritty soil, water, sow the seed, cover with a thin layer of soil, which press gently upon the seed, and place the pots in a vinery or garden frame upon a hotbed with a temperature of 60° to 70°. Shade till the seed vegetates, and then gradually expose the seedlings to the full light. Pot singly in 4-inch pots as soon as the plants can be handled, keeping them in heat till the roots are in full activity, then remove to a greenhouse and repeat as the growth makes progress. Raise a few plants from cuttings when such can be had. Treat the whole of the plants as hardwooded greenhouse plants, and next season, if you reside in the southern counties, try a few plants planted-out in various positions in the open air. We have seen Pittosporum undulatum established in the open air in Cornwall forming large handsome shrubs. Acacias and Eucalypti may also be met with in a flourishing condition and of considerable size in the gardens of that county. We have several Eucalyptus globulus established in a garden south of London, and we also have Eugenia Ugni and several Myrtuses growing well trained to an open wall; but we fully expect to lose the Eucalypti in the first hard winter. We state this to show you that planting in the open air should be regarded as an experiment doubtful in its results, and therefore not desirable for all the plants of any kind.

HOLLY LEAVES INJURED (An Old Subscriber).—The discolouring of the leaves is caused by the grubs hatched from the eggs of a very small fly having but two wings, named Phytomyia ilicis. We know of no remedy.

REMOVING THE BARK OF A TREE (J. R. B.).—If the bark is removed from a tree all round its stem that tree will die.

FLOWER BED ARRANGEMENTS (Subscriber).—For an exposed situation the best blue bedding plant is Viola Tory, and for a bright scarlet Nasturtium King of Tom Thumb, or, if you require a rich shade, Nasturtium King Theodore, deep crimson. Take especial care that the Nasturtiums are not planted in rich soil, or you will have a rank growth of foliage at the expense of blossom. Planted in soil of medium strength they bear flowers abundantly, and make bright masses of colour. If the soil and situation are such that Pansies do not flower continuously you might substitute a purple for a blue and plant Purple King Verbena.

MELON AND CUCUMBER CULTURE (J. J.).—It is solely a question of taste as to whether Melons or Cucumbers would be the more profitable occupants of your frame. Little Heath is the best Melon for your purpose, and one plant in each light will be ample. For raising the plants a night temperature of 60° is requisite, and a day temperature from sun heat of about 80°; you should also have a bottom heat of 80° from fermenting material. Unless you have sufficient dung and leaves to maintain the heat stipulated it would be advisable to defer the sowing of the seed until early in May, when the sun heat becomes more powerful; or you might, perhaps, induce a neighbouring gardener to raise a couple of strong Melon plants for you. The amount of manure you propose using is certainly not sufficient for commencing Melon culture on the 15th inst. If a genial temperature is provided the plants will not be ready for planting out until a month after the seed is sown. We advise you to obtain stout plants about the middle of May, and plant them out then in warm soil. The seed may be sown in pots, as also may seed of ridge Cucumbers—Stockwood Long Ridge being the best. You may, perhaps, raise the Cucumber plants by sowing at the time and in the frame you propose, but the temperature would be insufficient for raising Melons, even if the glass were covered with mats at night.

WORMS IN LAWN (Omega).—Soak it with lime water, and repeat the soaking when fresh wormcasts appear.

PEAT CHARCOAL (H. S.).—It is applicable to plants the same as common charcoal. We do not think its use would prevent the Potato disease, but it might check its progress.

AMATEUR (S. H.).—A labourer employed regularly in a gentleman's garden under a professional gardener, and for whom duty is paid to Government, ought not to exhibit and take prizes in the "amateur" class of a floral and horticultural show.

DESTROYING GREEN FLY AND RED SPIDER.—"R. G. M." asks for some fumigator, not tobacco, that will destroy these vermin. Tobacco smoke even will not kill red spider, and frequently syringing the plants is the best mode of keeping that insect in check. Syringing with a solution of quassia will destroy aphides, and will not injure or disfigure the foliage of plants. A quarter of a pound of quassia chips boiled for a quarter of an hour in a gallon of water will be of sufficient strength to be diluted with four or five gallons of clear water for syringing purposes. We have heard that bruised

leaves of the common Laurel will, if kept fresh in plant houses and frames, prevent the increase of green fly, but we have not tried this preventive.

ANNUALS (G. Davis).—Write to Messrs. Carter for the names; the firm exhibited annuals frequently, and we do not know the particular occasion to which you allude.

BEGONIAS (A. M. T.).—They are so much withered and some of them flowerless that we can only recognise two of them—namely, 4, *glaucofolia*; and 5, *Dregei*.

SALSAFY CULTURE (W. Lincoln).—Sow in March and April in an open situation in shallow drills 9 inches asunder; scatter the seeds thinly and cover them half an inch deep. When the plants are 2 or 3 inches high thin to 10 inches asunder. During very dry weather water occasionally very plentifully, and if half an ounce of guano is added to each gallon of water it will be very beneficial. They will have large roots by September or October; and in November, when the leaves begin to decay, a quantity may be preserved in sand for use in time of severe frost; but those left in the ground will not be injured. In spring, when those remaining in the ground begin to vegetate, the shoots when a few inches high may be cut for use as *Asparagus*, being excellent when quite young and tender.

NAMES OF FRUITS (Connaught Subscriber).—London Flippin.

NAMES OF PLANTS (J. C.).—1, *Pellaea rotundata*; 2, *Asplenium lucidum*. (S. M.).—1, *Polypodium angustifolium*; 2, *Nephrodium effusum*. (W. H. A.).—*Davallia Novae-Zelandiae*. (R. E.).—1, *Asplenium flaccidum*; 2, *Cystopteris fragilis*; 3, *Pteris serrulata*; 4, *Nephrodium Filix-mas*, var. (*Constant Reader*).—1, *Goldfussia isophylla*; 2, *Eranthemum nervosum*; 3, *Eriostemon intermedium*; 4, *Polygala oppositifolia*.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

MANAGEMENT OF A BUTTER-MAKING DAIRY.

WE propose at present to enter upon the subject of conducting a home-farm dairy composed chiefly of Channel Island cattle, but intend at a future time to take up the subject as it refers to short-horned and other cattle. We find that in most parts of the kingdom that the Channel Island cattle are great favourites on the home farm, particularly where there is a considerable portion of pasture and park land. Under the name of Channel Island cattle we have three breeds included—viz., the Jersey, the Alderney, and Guernsey. The two first named are now so nearly allied in breeding that it is very difficult for a novice to distinguish between them; nor do we consider it of much importance which we select, for the late and modern fashion in breeding as to character and colour is quite different from that which formerly prevailed. Formerly it was required that the animals should not only be good milkers, but their colour and markings were a point of importance, especially when desired for ornamental cattle in the parks of the wealthy. And so it is now, but the fashion has changed; for instead of the mottled markings of grey and white, or lemon and white, which used to prevail, the animals are now dressed differently, and required to wear a coat of self colour, the choicest colour being considered silver-grey or fawn colour, and if without a spot of white upon them they are more approved. The Guernsey breed is very distinct compared with Jerseys or Alderneys, having been as long as we have known them mostly of a self colour of yellow or reddish yellow, being much larger and better grown, though coarser in appearance and stronger in the horn, with more hair and more aptitude to fatten than the Jerseys. The chief distinction of the Guernseys is the extremely rich milk and high colour of their cream; but they seldom give so much in quantity as the other two breeds, and are not often used alone in a dairy, because in summer time their cream is too rich. As an instance we may mention that we had a dairy composed entirely of this breed, but were obliged to sell some of them, as the butter was so oily that it could not be made up and printed, and instead of being of the bright yellow hue so desirable in butter it was of a colour almost approaching that of bees' wax. It should therefore be considered that these animals should never form more than one-fourth or fifth of the number of cows kept, the object being to give the butter a deeper colour where poor milch breeds are kept. When, however, a crossbreed is required for a butter-making dairy, the Guernsey makes an admirable cross with the Shorthorn for improving the quality of the milk without deteriorating the value of the animal for fattening.

All kinds of the Channel Island breeds are extremely docile

and gentle animals; the males, on the contrary, often become vicious and comparatively unmanageable after two years of age. It is no wonder the beautiful and quiet Jerseys become great favourites, and particularly in those cases when ladies take an interest in the ornamental cattle of the park pastures. In order to have cows of the most approved style and quality they should be bred or selected with the following points:—Self colour; the breed both on male and female sides reputed for producing a large quantity of milk and rich and yellow butter; head small, fine, and tapering; eye full and lively; muzzle fine and encircled with mealy white; horns polished and a little crumpled, tipped with black; ears small, of a deep yellow colour within; back level from the withers to the setting-on of the tail; chest deep and nearly on a line with the belly; hide thin, moveable but not too loose, well covered with fine and soft hair of good colour; barrel hooped and deep, well ribbed home, and having but little space between the ribs and ribs, with tail fine; fore legs straight and fine, thighs full and long, close together when viewed from behind; hind legs short and bones rather fine; hoof small; hind legs not to cross in walking; udder full, well up behind; teats large and squarely placed, being wide apart; milk veins large and swelling. These are the points now kept steadily in view by the breeders in the Channel Islands, and we can do no better than adhere to them. Large numbers of cattle are imported every year, but the demand for them is so great that many are imported from the Channel Islands which were never bred there, coming probably from Normandy and Brittany, and after a short location are sent to England as Channel Island cattle, and there is such a likeness in many respects that it really requires a person accustomed to the business to distinguish between them. Generally speaking the inside of the ear will decide the question, for if the inside of the ear is not of the orthodox yellow colour they may be discarded as counterfeits instead of pure well-bred Channel Island cattle, notwithstanding other similarities.

In dairy farming for butter we must remark that when properly and industriously attended to it is one of most profitable points or practices connected with the management of a home farm. But having stated the requirements connected with Channel Island cattle we do not by any means wish to exclude the crossbreds from the home farm, for many may be selected if judiciously done that not only yield good profit but prove also very handsome and ornamental animals on the pastures. One important question, however, crops up—whether it is better to breed our own stock or be contented with such opportunities as may occur, and purchase the best we can to supply our wants. This will very much depend upon the neighbourhood, and the chances we have in our local markets of obtaining what we want of the required style, breed, and quality of the animals. There is, however, to our mind one point or matter which over-rides all the others—that is, that in breeding like begets like, and if our stock entirely, both male and female, represents our requirements we are pretty sure of a succession of stock, certainly far beyond that which we can ever expect to obtain as a whole by a system of continuous purchases, particularly if we require Channel Island cattle. Not only is it true that in the case of buying stock bred in this country that it requires a considerable time before the animals become accustomed to the change of soil, management, and climate; but it is doubly so with imported stock, because in their native islands they are cared for and treated as kindly as the farmer's children, at any rate as pets, and managed in that peculiar manner that when they are brought to this country the change is so great that we have often found several years elapse before they will answer the expectations formed of them. One of the greatest objections to the Channel Island cattle as we formerly knew them was that in the event of non-breeding or old age they were comparatively worthless, and must be sold at small value as compared with the original cost. But when they are bred or bought possessing the points above named we may feel assured that generally speaking they will pay for feeding and fattening for the shambles.

Let us now refer to the provision of pasture and food for the

cows, and it is a remarkable fact that in the Channel Isles the cattle are generally more healthy and free from epidemics than in most countries. This is no doubt attributable in some measure to the saline particles which float in the air over the islands and are deposited to some extent on the herbage and tend to its salubrity and the early production of grass and vegetable food for cattle by raising the temperature of the soil. After heavy gales it is often found that the grass in these islands has a strong saline flavour, and so partial are the cattle to this flavour that they will greedily devour grass which has been watered with sea water, which they had previously rejected. This circumstance teaches a lesson which we ought not to be slow to learn, as we all have salt at command. There is no question that any pasture or park land situated in the midland counties or out of reach of the sea breeze would be greatly benefited by the application of 2 or 3 cwt. of salt per acre in the spring months, for not only would grass be earlier but more wholesome for the cattle. In corroboration of the effect of salt in dairy cows, they always do best to have a lump of rock salt which they can resort to at all times, whether in their pastures or pens. Early grass is always an important point in a butter-making dairy, much more so than a dairy kept to supply milk only in the towns, because good milk can be obtained by the consumption of roots and every kind of vegetable produce; but this is not exactly the case with milk for butter, because some roots, it is well known, although they may tend to produce a full quantity of butter, yet the quality and flavour cannot always be depended on. On the contrary, grasses both of pasture and arable produce will generally give butter of the best quality, unless, as it is sometimes, affected by some noxious weeds which may happen to grow in conjunction with the grass. Most notably is the Italian rye grass, the produce of arable lands, an important factor in the early feeding of dairy cows, nor can any objection within range of our experience be brought against it; on the contrary, it is not only one of the purest of growths which can be used for feeding cows, but at the same time the earliest and most productive, giving also a capital succession of food during the summer. It has been often said that liquid manure is the best for early and abundant production; this is probably the case during the summer months, but in early spring liquids are apt to chill the land, thereby retarding the progress of growth as compared with nitrate of soda, which is the best for early produce.

(To be continued.)

WORK ON THE HOME FARM.

The horse labour on the farm has lately been removed from the arable land by the snow, frost, and heavy rains which have prevailed at the end of March. As a consequence the rolling of the pastures has been going on to good effect, also carting dung from the cattle yards to heap for future use. It answers a good purpose to mix this with earthy compost for the pasture land; and whilst some of the horses may have been carting dung, others may have been well engaged in carting roadside earth, to be mixed with dung or heaped in store for other purposes, such as to be broken fine and screened when dry in the summer months. Now this matter leads us to consider important points connected with home-farm management, and which we can with confidence recommend—viz., that all the dung and compost should be used entirely upon the pasture or park land, and that the arable land should be manured with artificials, such as guano, nitrate of soda, and bone superphosphate only. In our own management upon home farm lands this system has raised various properties from the depths of poverty into the highest state of fertility, and as this matter is so intimately connected with the work of the farm we proceed to give reasons for our adopting so unusual a course of management. Firstly, there being no manure or compost to be carted on to the arable land there can be no hindrance at sowing time, for we have often known in difficult seasons the seed time lost whilst the manure was being carted on to the land; whereas if artificial manures only had been used, the work of sowing manure and seed would have proceeded simultaneously without let or hindrance. On the majority of soils, both light and heavy, the artificial manures if properly selected, of good quality, and judiciously applied, are quite equal if not more efficacious, value for value, than dung or compost, which involves in all cases heavy costs in carting, laying-out, and spreading; and it must be remembered, too, that the carting and laying-out of dung or compost on grass lands can proceed during nearly the whole year, except after the pasture has been laid-up for hay. Secondly, dung and compost is better for pasture land, because these substances are a mineral addition to the soil, which is so much more important on the pastures where the land is not moved; whereas the arable land is always supplied with minerals, or may be, by the actual cultivation and tillage going on in preparation for crops. Therefore the essence and active principle of manures is readily and without inconvenience supplied by a dressing of artificial or ammoniacal manures.

The men will now be employed in couching, in which work the women and boys may assist. If this period of the year is missed for cleaning the land the opportunity may be lost for land in-

tended for mangold. In working the land when foul we prefer the new kind of lifting-drag or scarifier made by Howards of Bedford. This is a great improvement upon the old-fashioned drag, as it combs out the grass and weeds, lifting them to the top to be dealt with by carting off the land, either to put into heaps or lay out on grass land, as it proves good manure. We prefer this to burning on the land, for we hold it bad farming to burn anything which will rot. Besides, where couch and weeds are carted-off it can be done without so much time and labour being spent to get it dry enough to burn, the work is not hindered by showery weather, and the next ploughing can be done without delay. The late rains will also have enabled the horses to be employed in rolling the pastures where laid-up for a hay crop. We have been over much land lately of a rather heavy and strong nature resting on chalk. On such lands we find large flint stones not very numerous, but still enough to interfere with certain work on the land, such as cutting corn, grass, &c. Many of these stones are called provincially by the term rags, and are generally picked up and then carted away, but we prefer to break them with an iron hammer; they will when broken to about the size of a hen's egg work-in and roll into the ground, and instead of being an impediment to cultivation will improve the working of this heavy land, make it plough lighter and work easier. Earth heaps should now be turned up, so that the different kinds of soil in them may be mixed and the weeds become rotten. When earth heaps are to remain during the summer, instead of allowing them to remain idle we plant vegetable marrows of the large cattle sort, otherwise we plant pumpkins of the early French variety, also gourds and the Ohio squash. These grow with great luxuriance, keep the weeds down, and the fruit is capital food for cows and pigs. We shall return to this subject another day.

FORTHCOMING POULTRY SHOWS.

WE have before us the schedule of the Bath and West of England Society's next show to be held at Oxford in June. Rule 12 informs the public that "important alterations having been made, exhibitors are particularly requested carefully to examine the prize lists and regulations of the Show." The alterations are indeed important, and not altogether improvements; among them we observe—1, Single birds are shown throughout all the poultry and Pigeon classes in lieu of pairs of hens and pairs of Pigeons. The advisability of this change is, of course, a matter of opinion. 2, The £5 cups are cut down from about fifteen to two! Of late years these have been given for the best cock and best hen in each section; now they are only offered for the best bird of each sex in the show. 3, Entry fees are raised from 5s. to 6s. in the poultry classes, and from 2s. 6d. to 5s. in the Pigeon classes. This we think ungenerous, and utterly unworthy of so old-established and rich a Society, especially when the number of cups is so greatly reduced, and the cost of food must also be considerably lessened by the exhibition in many classes of single birds where two were formerly shown. On the other hand we may note some slight improvements. 1, The classification has been extended; there are sixty-four classes for poultry and twenty-one for Pigeons. Among the new ones are classes for Minorcas, Leghorns, and Langhans (the latter apparently privately subscribed for), and two for the best cockerel and pullet respectively of any variety hatched in 1878. This addition strikes us as a purposeless one. Where chickens are shown they should be properly classified, or promising birds may be much trashed to no purpose. 2, Divided baskets are apparently allowed for poultry. This we always consider a great boon, which should everywhere be granted.

We have also before us the schedule of the Epworth Show to be held on May 8rd. It is on the whole a good one, though we cannot consider a schedule a complete one which contains no class for Dorkings. Single birds are shown throughout, and the prizes are £1, 10s., and 6s. There are forty classes for poultry (eleven of these being for Bantams), with three sectional cups of three guineas each; twelve classes for Pigeons, with three-guinea point cup, and a two-guinea cup for the best bird. There are also classes for Cage Birds, Dogs, Rabbits, Cats, &c.

PIGEONS—HINTS TO AMATEURS.

If some of your correspondents who are experienced in the fancy would, under some such heading, detail us their experience when "apprentices" to it, no doubt much good would result to their younger brethren. In my own case I am always on the look-out for anything that may tend to increase my knowledge of Pigeons, and yet find very little in any of the journals that regard the fancy in a favourable light that would at all enlighten a young fancier as to the proper points, markings, &c., of some of our birds, such as Tumblers, Baldheads, Beards, &c., with some of which he would usually commence his career. I am sure if any gentleman would kindly take into consideration the claims of his younger brethren in this direction and let us have a little information, he would be earning the thanks of many who cannot get their

birds anything like perfection because they do not know how.—**AMATEUR.**

[In compliance with the wish here above expressed I will say a few words concerning Flying Tumblers, especially for those who are beginners in the fancy; with an eye, too, to those who desire to keep Pigeons for amusement and for ornaments to their homes—and very home-like and pleasant do a few well-shaped and coloured fancy Pigeons look, the tamer and more domestic the better. I shall also bear in mind what I said in a recent number, that of March 7th, about the many, for many I am sure there are, who have no idea of showing—nay, who would not for a moment care for the expense of sending their birds about the country; yea, who much prefer having their pets at home, who do not want to break pairs, or shift eggs, or lose them. The exhibitor is one class of fancier; the man or boy, or lady is it? who likes a few fancy Pigeons always at home is another. There is room for both, for this is a wide world.

"AMATEUR" mentions Tumblers. In regard to these birds the older Pigeon books especially, and little handbooks on the subject, have been sad deceivers. They have spoken of Tumblers as having perfectly round heads, tiny beaks, and in the same breath of their flying many hours, and they implied too that they all tumble in a wonderfully systematic way without one doing differently. This is not so. The very small-headed birds with tiny beaks are the high-class (so called) Tumblers, whose heads may be round as marbles; but they are so from pressure and art, not from nature. Their poor beaks are very tiny because pared down to the quick, and I have seen them bleeding from the process. Tumble! they simply cannot. Fly for hours! quite impossible. They can only fly with weak fluttering wings about an aviary, and in a little wind would be dashed against the gable end of a house and killed. Now, the flying birds are none of these; they are not atoms, but good-sized Pigeons. Their heads are roundish, not round; their beaks are stout and strong and somewhat short. They are plump-bodied and dapper walking and looking birds; but they will not fly for hours. Take the word of one who has kept them for years. Sometimes after being shut in, or from some atmospheric cause probably, they will fly for a long time, but rarely even an hour. Then as to their tumbling. Very few of them tumble at all, and if they do it is the worst shaped as a rule and those that have a few feathers on their legs, both which things greatly take off from the neat Tumbler appearance, so that no young amateur must be disappointed on turning his birds out after they have bred and are used to their home, and—particularly remember this—have had a wire cage in front of their home, and hence they could see all the features of the place near. Now, when on turning out his or her (I prefer to think of the her; some gentle school girl perhaps) Pigeons—these Tumblers I am writing of—if she does not see them all tumble as the books talk about, she must not be disappointed. Some will back but not go over, as if at the last moment their courage failed them; some will make a great display with their wings, coming down a long way on them, but head foremost, not head-over-heels. But there may be in the number one or two which you have not cared about in the loft—not at all your pets, and yet actually over they went, and then up again among the rest. There over and over they go. Now you must notice (be sure you do) which these really are, and do not fancy that it is that pretty little hen you are so fond of. A word in your ear. Pretty things are not always the best—no, not even among human beings. Pick out these best tumbling birds, match them together, and shortly you will have a flight of real Tumblers. This selection is a pretty task. I have ridden when a lad—aye, and afterwards too—miles after a real Tumbler that somehow or other I have heard of; then I have seen the bird at its performance, that it was not a backer or a skimmer but an actual Tumbler, and then bought it. I used to find the pursuit of good birds a very interesting object for a ride or a walk.

Next, about colour in Tumblers. Without an atom of doubt the Black and White Baldheads look the best in the air, and are often the best to tumble. As to look, the Black is of course a most distinct and perfect contrast to the White. Red is not amiss. A Blue Baldhead is sweetly pretty on the ground, but the light sky-blue of its feathers looks too pale in the air. Still, all are very pretty birds; and not less pretty—nay, more pretty than any, is the Yellow Baldhead, though I never had one that would tumble, though many tried but failed.

Then as to the colour or exact markings of Baldheads. Now the books will tell you they must have clear white heads. Not one in a dozen but has one or two black feathers, particularly over the eye. The books say clear white thighs, but very often they have dark or darkish thighs; and this makes the Red bird look worst in the air, as the red on the thighs is a lighter red than on the body. By pains, and care, and selection you may get up a flight in time very fairly correct in marking. One marking you must secure, and that is white wings—I mean, of course, white flight feathers. This is indispensable, or nearly so, to the beauty of a flight of Tumblers, as the white wings show so well in the somersaults. Another thing I would say: As there are Tumblers that under-do the tumbling, so there are birds that over-do in the

matter. These poor things are really to be pitied; they in time cannot fly upwards to a nest without tumbling, until they are so conscious of their trouble that they cease to attempt to fly for fear of breaking their heads on the ground. Still, though their case is no doubt one of brain disease, yet moderate tumbling in high-flying birds is, I hold, a sign of health, and the tumbling is frolic and fun and a source of enjoyment to the birds themselves. There are other Tumblers which fly a distance, and with the utmost difficulty from their excessive tumbling manage in a scrambling way and after much effort to get home. There are also the Rollers, owning Birmingham as their home, or original home, that after ascending roll over and over ten, twenty, to thirty times, and, if they do not hit their heads against a chimney-pot, come all right to the ground, and when they do get there they gasp and look around and seem to say, "There now, what do you think of that? It's all very well for you to look at, but it's awful dangerous work, and I feel very bad after it; and don't, please, drive me up again, good master." Now, I write from experience, having kept all manner of Tumblers, and being excessively fond of the birds. Strive by crossing to obtain high-flying moderately tumbling birds, but see them tumble before you buy them. Let them be as pretty as you can, and with white wings if possible. They are charming Pigeons. Up they go, and yet do not scatter wide, but keep Skylark-like just above their home.

I will prattle more about other varieties of Tumblers in another paper.—WILTSHIRE RECTOR.]

VARIETIES.

UPWARDS of £2000 has been promised on behalf of the fund for holding the proposed great agricultural Exhibition in London next year. Her Majesty and other members of the Royal Family, with the Dukes of Devonshire, Westminster, and Bedford are amongst the principal donors. The Council of the Royal Agricultural Society express themselves sanguine as to the obtaining of an appropriate site within the metropolis for the Exhibition.

—A BILL brought into Parliament by Mr. Clare Read to amend the Adulteration of Seeds Act, 1869, enacts that section 2 of the Act now in force shall be read as if, instead of the words "The term 'to dye seeds' means to give to seeds by any process of colouring, dyeing, sulphur-smoking, or other artificial means the appearance of seeds of another kind," there were therein inserted the words, "The term 'to dye seeds' means to apply to seeds any process of colouring, dyeing, or sulphur-smoking."

—WE have received from Messrs. Ulbricht of Hamburg a most imposing list of their poultry and pigeons for sale; in fact, it is an almost complete list of all the known varieties of domestic poultry and pigeons, among which we observe many which we had believed to be extinct. Some of these, however, are not priced, and we fancy that the Messrs. Ulbricht can hardly have them in stock—e.g., the rarer kinds of Polish and Eastern Bantams, but must insert them in their catalogue as breeds which they believe it possible to procure.

—GOOD service is being done by the Royal Agricultural Society by determining by analyses the value of feeding stuffs and manures vended by certain dealers at unjustifiable prices. Amongst some of the cases recently published we find details where "meat and bone" manure had been sold at £5 10s. per ton, which was only worth £2 2s., and "nitrophosphate manure" had been sold at £9 per ton which was scarcely worth 15s. Analyses are effected for members at a nominal sum by the consulting chemist of the Society. The purchasing of fertilisers is a matter of such great importance that too great care cannot be exercised in the selection of dealers in the various compounds now offered to the public.

—A CORRESPONDENT writing in the *Prairie Farmer* on the comparative merits of Italian *versus* black bees, states that for three years he kept the two races with the same attention and care given to each, and he could not fail to see in that time the superiority of the Italians, which was evident in every season, but more so in hard seasons, when the Italians stored double the honey that the natives did. With the Italians he finds some stocks much more energetic and prolific than others, and concludes that the apiarist should if possible breed only from stocks having most good qualities. This careless breeding may be cause of, and doubtless is, of some bad reports made. Those raising bees to sell should be careful in their selection of stocks to rear queens from. This, we think, coincides with the experience of our able correspondent "A RENFREWSHIRE BEE-KEEPER."

—A CORRESPONDENT of the *Irish Farmers' Gazette* communicates the following experience on potato-growing:—A few years ago I planted an increased growth of hops, on 12 acres of which I planted potatoes. Betwixt the rows of hops, which are planted 6 feet apart each way, I applied a ton of shoddy, 6 cwt. of superphosphate, and 4 cwt. of kainit per acre broadcast, and well cultivated or grubbed the land betwixt the hops in both directions; then in the north and south direction planted one drill of potatoes (between the hops) with whole sets 15 inches apart. They were horse and hand-hoed thoroughly four times;

the growth (notwithstanding the hope) was the strongest and most luxuriant I ever saw, and although the drills were 6 feet apart, the produce was over 4 tons per acre, which made over £20 per acre delivered at the nearest railway station. The sorts were Regents and Victorias; the latter were the heaviest crop, but more diseased. Considering the luxuriance of the crop they were wonderfully free from disease. I also found that mangold wurtzel flourished on shoddy and the same manures better than with 20 tons of good dung instead of the shoddy. The soil was moderately strong on the Kentish rag, which is a bastard limestone celebrated for growing the Golding hops. We may add that some of the finest crops of Grapes we ever saw were produced by Vines growing in borders which had a liberal admixture of shoddy in their formation.

ABOUT ANCIENT WRITERS ON BEES.

In reading up old writers on bees one is struck with the wild notions and fancies of many of them. For centuries little knowledge was gained of the history and management of bees, and therefore little could be given in writings. Amid heathen darkness Dr. Charles Butler, who lived in the time of Charles I., began to feel his way to facts, to read bee life through his own eyes, and expose the ignorance of others who had gone before him. Probably Butler was the first to discover that the monarch of a hive is a female; that bees prior to swarming send out scouts to find a new habitation or branch to settle on; that bees gather farina to feed their young, and gather it from one kind of flowers only in each journey, and never make wax of it, seeing that hives full of combs have no more wax at the end of the year than they had at its commencement, and that real wax falls from the bees on their boards in the work of building combs. The scales or flakes of wax which he found on the board Butler melted, and thus discovered that wax is altogether a different thing from farina. Thorley, who wrote one hundred years after Butler, proved that wax is concreted under the scales of the abdomens of the working bees. The researches of other and later writers led to the same conclusions, and Huber was probably the most celebrated expounder of these and other matters of bee history at that time.

In looking back along the line of the ages one is struck with the great amount of attention that has been given to the honey bee, its natural history and management. Amid the discoveries of science and the mysteries of life and creation the little busy bee comes to the front to claim and secure attention. Where else shall we find a subject of greater interest than a bee hive, or one so full of social life and wonders? Though many of the most thoughtful men of all ages—kings, philosophers, poets, historians, and travellers—have "walked round" the bee hive and tried to dive into its mysteries the subject is more attractive now than it ever was before, and presents problems for solution that will puzzle the great masters of this enlightened age. In a bee hive we have a community of wonderful creatures—a government the most perfect, unapproachable architecture, loyalty that never wavers; in a word, a community remarkable for industry, economy, cleanliness, courage, and ingenuity.

Much has of late been done by simple practicable teaching to popularise bee-keeping and spread a knowledge of bees. Much remains to be done. Everything in the bee world indicates progress. Many ladies and gentlemen throughout the country, and men of business engaged in rural pursuits, are ever seeking to promote the happiness of the cottagers around them, and as a means to this end they are now encouraging the culture of bees by offering premiums for honey, &c., at our horticultural and agricultural exhibitions. I sincerely hope that these laudable endeavours will be repeated and multiplied from year to year, and everywhere crowned with success. In drawing up schedules of prizes for bee and honey shows it appears to me that some limitations should be introduced to prevent one or two leading men from taking too many prizes at one show, and that secretaries and treasurers or other officials of societies who draw up such schedules should obtain or be prohibited from competing for the best prizes. No competitor should be appointed to act as a judge. At some of our largest bee and honey shows this principle has not been practised, and hence confidence has been broken and societies have come to grief. Meanwhile, and notwithstanding such mistakes and drawbacks, the knowledge of the practical management of bees is spreading far and near.

All I have to say here as to the study of the natural history or habits of bees is this—that there is room for another Huber on the earth, and plenty of work for him to do. The story of bee life has never been fully told: the profound mysteries of a bee hive have not been all unfolded by past discoveries and descriptions. There remains ample room for future research, questions to settle that will require a great amount of attention, energy, enthusiasm, and experiment. I cannot wish I were young again to write another book, for that cannot be; but in case someone who reads this letter may wish to study bees for himself or herself, with a view to write an accurate and comprehensive work on the habits of bees, I will here suggest that the safer way would be to read

some of the best works on the subject, and test every point by experiment and thorough examination. Go through the surface opinions of others, and dig down to the roots of every question. It is not long since a severe student of physical science, natural philosophy, and natural history, said to me that he had lately been reading the history of the cold-blooded animals, and found that all the modern works on the subject were simply the copies or reproductions of ancient writers; and he asserted that the history of the cold-blooded animals could not be written without a fresh and thorough examination by fresh men and honest students of nature. Many important and interesting discoveries have been made in bee history, and these discoveries have been well and repeatedly told, but, as has already been said in this letter, there is yet much to discover, and an inviting field for investigation by experiment. If anyone were to ask me to suggest a title for a fresh and original work on bees, I would say "Instinct and Reason of Bees" would be a good name, and one indicative of mysteries not easily fathomed.—A. PETTIGREW.

OUR LETTER BOX.

CHICKENS (W. Whitehead).—No one could answer your query peremptorily. The chickens probably will be the offspring of each cock, the latest-laid being by the Cinnamon.

RED-FACED SPANISH FOWLS.—"Northern Subscriber" and many other correspondents ask where eggs of these fowls can be obtained. It would repay anyone who has them to advertise.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.						Rain.
	Baromet- er at 35° and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of Wind at 1' alt.	Shade Tem- perature.		Radiation Temperature.		In sun.	On grass	
		Dry.	Wet.			Max.	Min.	deg.	deg.			
1878.	Inches.	deg.	deg.	S.	deg.	deg.	deg.	deg.	deg.	deg.	In.	
April.				N.W.								
We. 3	29.583	44.3	42.6	S.	39.8	45.3	34.6	52.2	27.9	0.346		
Th. 4	29.783	42.6	40.7	N.W.	39.3	43.4	31.6	93.8	37.3	0.010		
Fri. 5	29.694	42.8	41.0	N.W.	41.0	50.7	36.2	90.8	28.5	0.084		
Sat. 6	30.109	54.2	54.2	N.	40.5	51.6	30.0	71.8	21.8	—		
Sun. 7	30.194	42.9	38.8	S.E.	38.9	51.2	32.0	91.0	20.8	—		
Mo. 8	29.968	47.4	42.4	S.E.	41.1	53.3	36.7	100.2	31.9	—		
Tu. 9	29.984	47.7	43.3	E.	41.9	56.3	37.9	106.5	30.3	—		
Means	29.915	43.1	40.4		40.5	51.7	34.2	86.5	26.9	0.342		

REMARKS.

- 3rd.—Fair morning; rain commenced at 9 A.M. and continued the greater part of the day; very fine sky at sunset; starlight night.
4th.—Very fine sunny day; misty in evening, but fine.
5th.—Fine bright morning, overcast after 9 A.M., showers and sunshine at intervals during the day; hail at 9.36, and thunder at 1.43 and 1.44; slight fog in evening.
6th.—Fine in early morning; very foggy and dark from 8 A.M. till 12, afterwards fair and pleasant; fine evening.
7th.—Bright sunny morning, windy and fair rest of the day; bright starlight evening.
8th.—Bright sunny morning, very high wind and much dust; a sunny day, but not pleasant; starlight evening.
9th.—Sunny morning, dull, but fair afterwards.
Nights still very cold, but days warmer in spite of drying winds.—G. J. SYMONS.

COVENT GARDEN MARKET.—APRIL 10.

No change has occurred in the supply or quality of fruit and vegetables during the week.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½	steve	2	8 to 6	0	0	0	0	0
Apricots.....	dozen	10	0	0	0	0	0	0	0
Chestnuts.....	dozen	10	0	0	0	0	0	0	0
Currants.....	½	steve	0	0	0	0	0	0	0
Figs.....	dozen	0	0	0	0	0	0	0	0
Filberts.....	½	lb.	0	6	0	9	0	0	0
Cobs.....	½	lb.	0	6	0	9	0	0	0
Gooseberries.....	½	bushel	0	0	0	0	0	0	0
Grapes, hothouse.....	½	lb.	0	0	0	0	0	0	0
Grapes, new.....	½	lb.	12	0	0	0	0	0	0
Lemons.....	½	lb.	6	0	10	9	0	0	0

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	0	to	4	Mushrooms.....	pottle	1	6	to	2
Beans, Kidney forced.....	½ 100	1	0			Mustard & Cress.....	punnet	0	2	0	0
Beet, Red.....	dozen	1	6	2	0	Onions.....	bushel	2	6	3	4
Broccoli.....	bundle	0	9	1	6	Pickling.....	quart	0	4	0	6
Brussels Sprouts.....	½ steve	2	6	0	0	Parsley.....	doz. bunches	2	0	0	0
Cabbage.....	dozen	1	0	2	0	Parsnips.....	dozen	0	0	0	0
Carrots.....	bunch	0	4	0	6	Potatoes, frame.....	½ lb.	0	6	2	0
Capsicums.....	½ 100	1	6	2	0	Potatoes.....	bushel	5	0	0	0
Cauliflowers.....	dozen	2	0	4	0	Kidney.....	bushel	5	0	0	0
Celery.....	bundle	1	6	2	0	Radishes.....	doz. bunches	1	0	1	0
Coleworts.....	doz. bunches	2	0	4	0	Rhubarb.....	dozen	0	6	1	6
Cucumbers.....	each	0	6	1	0	Salsify.....	bundle	0	9	1	0
Endive.....	dozen	1	0	2	0	Scorzonera.....	bundle	1	0	0	0
Fennel.....	bunch	0	3	0	0	Seakale.....	basket	1	6	2	6
Garlic.....	bunch	0	6	0	0	Shallots.....	½ lb.	0	3	0	0
Herbs.....	bunch	0	2	0	0	Spinach.....	bushel	2	6	4	0
Lettuce.....	dozen	1	0	2	0	Turnips.....	bunch	0	3	0	0
Leeks.....	bunch	0	2	0	4	Veg. Marrows.....	each	0	0	0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	APRIL 18—24, 1878.	Average Temperature near London.			Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.	Clock before Sun.	Day of Year.	
			Day.	Night.	Mean.	h.	m.	h.	m.	h.	m.	h.	m.				
18	TH	Linnean Society at 8 P.M. Liebig died, 1873.	60.5	55.8	48.1	5	2	6	59	9	55	4	53	16	0	43	108
19	F	GOOD FRIDAY.	60.3	54.9	47.6	5	0	7	0	11	0	5	21	17	0	55	109
20	S		61.8	54.7	48.6	4	58	7	2	morn.	6	0	18	1	8	110	
21	SUN	EASTER SUNDAY.	60.7	57.3	48.0	4	58	7	4	0	11	6	53	19	1	21	111
22	M	Bank Holiday.	60.4	57.5	48.9	4	58	7	5	1	4	7	59	20	1	33	112
23	TU	Royal Medical and Chirurgical Society at 8.30 P.M.	60.3	56.7	48.5	4	51	7	7	1	42	9	13	21	1	46	113
24	W	Royal Botanic Society's Spring Show.	60.2	55.7	48.0	4	49	7	9	2	8	10	28	22	1	57	114

From observations taken near London during forty-three years, the average day temperature of the week is 60.5°; and its night temperature 56.1°.

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MOWING MACHINES.

NEXT to the adaptation of hot water for heating garden structures the mowing machine has proved the most valuable invention and the greatest aid to gardening practice. It is emphatically a labour-saving implement, and such is the excellence to which it has been brought that the quality of its work cannot be equalled by the most expert mower with the scythe. Possibly it may be true that Daisies and similar weeds may have increased on lawns since they became so smoothly shaven with the machine, but any little inconvenience arising from the presence of the "wee crimson-tipped flower" during a few weeks in spring is more than counterbalanced by the velvety smoothness of the turf during the remainder of the season; the mowing machine is in fact indispensable to gardens large and small where lawns have to be kept in order. Machines are adapted in size, too, for all lawns, as they can be had to cut any width from 6 feet down to 6 inches. The improvements that have been effected during the past twenty years are also very great, and can hardly be appreciated except by a comparison of an old noisy cumbrous machine of a quarter of a century ago with one of more recent manufacture.

It is surprising how long a mowing machine will continue serviceable with care and good usage. I have had a machine in my care that has been in regular use for more than a quarter of a century, and it is still in good working order, but does not work with nearly the same ease as the machines of the present day. It is a 24-inch machine, and it is laborious work for three men to use it on a level lawn. Two years ago its use was relinquished, not because it was worn out, but because two new machines in its place have effected a great saving of labour: and this brings me to an important consideration in respect of selecting a machine that will give the greatest amount of satisfaction.

The first point I would urge is never to retain an old-fashioned machine, even if it does its work well, because every day it is used it involves an extra outlay of 3s. (a man's wage), which soon amounts to a considerable sum. I have arrived at this fact from experience, having found that two men can do more work, and do it more easily, with a modern implement than three men can effect with an ancient one of the same size.

Another point of importance that I have determined is that in many, and probably in most, gardens a number of small machines, each capable of being worked by one man, are more profitable than a lesser number of larger machines requiring two men to work them. Take the case of a garden where three men are employed, including the gardener. There is a considerable extent of lawn, broken up, it may be, by jutting points of shrubberies and many flower beds. In such a case it is usual to have a 20 or 24-inch machine worked by two men; but if each man is furnished with a 14 or 16-inch implement very much more work will be done in a given time. I have proved that point by direct experiment. Another, and often a very great advantage in having two small machines instead of one large one

is that the gardener often requires the aid of a man in doing some other and urgent work when the mowing also is about equally urgent. By taking a man from the large machine the mowing is stopped altogether; but when two small machines are employed a man can be withdrawn for a time and the mowing proceeds with the other. If only two men are employed in a garden having a very large lawn the advantage of having two small machines instead of one large one is still greater than where three men are employed. The rule of a multiplicity of small machines holds equally good when the lawns extend to several acres and where a number of men are employed in working the machines. This applies to lawns having many slopes, nooks, and flower beds, and where horse or donkey labour is not available. The plan in such a case of furnishing each man with a machine of a size that he can work it easily and expeditiously is the most economical to the owner of the garden and the most satisfactory to the gardener. I have been informed that this plan is carried out to a considerable extent in the London parks and gardens, where it is necessary to restrict labour to the lowest point consistent with the efficient performance of the requisite work.

In the case of the garden under my supervision, since two small machines were substituted for one large one the garden has been kept in much better condition, and a return to the old plan would be regarded as something like a calamity. In a larger garden in the same locality five labourers and two 24-inch machines were employed for several years. Eventually three small machines were adopted in the place of the two larger, and the garden is now apparently as well worked with four labourers as it was before with five. The three machines did not quite cost £20, while the saving in labour yearly exceeds £40, wages being 18s. per week. The gardener at the time demurred to the withdrawal of a man, but I think that he would not go back to the old plan if he had the opportunity. Before machines were introduced six labourers were always employed in the same garden, so that a clear gain according to the present rate of wages of £80 a year was effected by employing machines, the odd £13 (the wages of the men amounting to £93 12s. per annum) being quite sufficient to supply the implements and to keep them in good working order.

The size of machine for one man to work can only be determined by the nature of the lawn; if it is tolerably level and not mossy a man will work a 16-inch machine, but if the lawn is of a contrary character he will do more work with a 14-inch implement. If a doubt exists as to the right size to select, it is safer to err in choosing a machine rather small than one so large that it cannot be worked easily and quickly. It is a great mistake to have machines that tax the strength of the men to the utmost when using them, for work done under those conditions means loss to the men and the master too.

It is important that mowing machines be well taken care of both in the interests of master and man; the former by their lasting longer, and the latter by their working easier. They are like clocks and watches, and will not "go well" if they are permitted to become clogged with oil and dirt,

or if their works become rusted. The machines should always be cleaned after being used. This is a tedious matter if set about in a wrong manner, but quite easy when rightly done. The plan I have adopted for many years, and now always insist upon, is to rinse each machine with hot water before placing it away. A large can of water is sufficient for a machine, and when "slushed" in it quite clears away all particles of grass and dirt. The hot water evaporates quickly and the machine dries at once: if cold water is used rusting often follows.

As to the comparative merits of the machines of various makers I have little to say. I have had them from three celebrated manufacturers who advertise in your Journal, and every machine works admirably. I am really unable to say which is the favourite of either myself or the men working them.

During "Daisy time" the grass box is fixed, and the grass and Daisy seed (if any) removed; but in dry hot weather the mowings are scattered on the lawn as the work proceeds.—
A STEWARD AND GARDENER.

LARGE VEGETABLES—ASPARAGUS.

"WHILE I am unable to concur with all that "A KITCHEN GARDENER" writes on vegetable culture, and especially in the matter of Asparagus, I observe with pleasure that he lays much stress on quality as opposed to mere size, and consequently coarseness, of garden produce. As feats of cultural skill I can understand a gardener pointing with a certain amount of pride to heads of Celery weighing 9 or 10 lbs., to Cabbages of at least the same weight, to Cauliflowers still larger, to Onions as large as Turnips, and Turnips as large as American Pumpkins. I was once proud of such feats myself, but I have lived long enough to see the error of many of my youthful ways, and amongst them that of growing gigantic vegetables. By growing produce of the character referred to we court loss in three different forms—1st, The extravagant use of manure; that is the master's loss. 2nd, The unnecessary expenditure of labour; that is the man's loss. And 3rd, The waste of produce in the scullery, which is both master and man's loss: to the gain of what? The pigs.

If it were possible to determine the value of masters' money and man's muscle that go to furnish the refuse tubs in the sculleries of the affluent, we should be startled at its magnitude. Scullery and kitchen maids have a summary mode of dealing with large and coarse vegetables. They do not consider long about them: they have no time for that, but dissect them boldly to their own satisfaction, and the benefit, let us hope, of—the pigs.

Did you ever see a domestic whose duty it was to prepare the vegetables for the cook take an Onion weighing 1 lb., cut a slice off it of an ounce, the quantity often required, and return the remaining 15 ozs. to the Onion-box or drawer? I never did. Did you ever see how dexterously a Cauliflower which in its normal state would fill a pail can be made to fit into a teacup? I have. Did you ever see a Turnip of the size of a child's head decrease a thousand times faster than the root ever grew, to the dimensions of a hen's egg. I have seen hundreds of such instances, but I never see one now without being reminded of the old Latin motto. *Reductio ad absurdum*. It is the same with Carrots and other vegetables, but the most absurd reduction of all occurs with Celery.

I remember when I was a vegetable boy digging Celery nearly or quite as tall as myself, and breaking in my clumsy way an occasional spade shaft over it. My next duty was to reduce the bulk of the Celery fully more than one-half at the rubbish heap, and then to take it into the scullery for Mary to have her turn at trimming. Another half of the portion left was then removed by Mary, and the residue, perhaps one-fifth of the original bulk, less rather than more, was fit for the master or the "upper servants;" the last-named individuals were so very particular, at least Mary said so, that the Celery must be small. I thought then in my boyhood that gardeners were on the "wrong tack" in vegetable growing, and since arriving at manhood I have found the truth of my early convictions. The growing of gigantic Celery, and Brobdignagian vegetables generally, for the tables of the gentry is a gigantic mistake, and I am glad that no such practice is advocated by "A KITCHEN GARDENER." But while I agree with your correspondent thus far, I have, as we say in the north, a "crow to pull" with him on growing Asparagus, which I will come to presently. I wish, however, first to narrate a little of my

recent experience on the growing of large vegetables and to place on record one or two rebukes I have experienced concerning them.

For several years I have been engaged in growing garden produce for a fastidious nobleman—one who knows what is good as well as most people. Moving in a high circle he has exceptional facilities for ascertaining the tastes of that section of society for which gardeners as a rule have to cater. This nobleman has in the most friendly manner impressed on me the great difficulty that families experience in obtaining vegetables exactly of the character they wish. He informs me that the one great topic in reference to garden products which is discussed by ladies and gentlemen is that gardeners will grow vegetables too large. When they are placed on the table in a small state it has come to be taken for granted that the cook has "made" them so, and the gardener who has grown them gets no credit for his pains. That is what I have been repeatedly told by "one who knows." I have endeavoured to profit by the hints, and since I have made it a practice of growing vegetables of half the size that I did formerly I have found it much easier to maintain a supply, and have given much more satisfaction as a cultivator than I gave previously.

I recollect an occurrence that taught me a silent but forcible lesson on the folly of growing large vegetables. The crop of Beet had been sown too early, and a warm showery season followed. The result was that in September the roots were much larger than usual. The crop, it appears, had been examined by the owner, and one day in my absence two men were ordered to follow his lordship with forks and wheelbarrows. He conducted them to the Beet bed, and told them to "dig up that Mangold Wurtzel and take it to the cows." "It's Beet for the house, my lord," one of the men ventured to explain. "No," was the prompt reply; "it is not Beet for the house, it's Mangold Wurtzel for the cows; take it away at once." I was, of course, greatly chagrined when I found what had occurred, and it was quite expected I should resign my charge in consequence of the "interference." The under gardener went so far as to say that if I could "stand that I could stand anything," but "old George," the vegetable man, whispered to me quietly—"Take no notice, he wants your place, sir; I know he does." I decided to let the young man wait. As a gardener I was "doing well," and was always met kindly; why should I punish myself because a master had done what he liked with his own? I resolved not to mention the circumstance; neither did the nobleman ever allude to it. He met me kindly as usual, but not to this day (and years have passed since the occurrence) has he once mentioned the large Beet. The rebuke made was silent but effectual, for I have never since sown the main crop until the second week in May, and have never since had coarse roots. The under gardener is waiting for the "head place" yet. He is a capital assistant, and I think is likely to remain an assistant, at any rate at —; no name, Mr. Editor, or I could not write half so freely, and I prefer freedom rather than fame.

Another rebuke I may mention. "Old George's" reply on this occasion was amusing. He was carrying a basketful of large Cauliflowers to the scullery for use in the servants' hall. His lordship met him, and the following dialogue ensued. His lordship: "Fine Cauliflowers, George; where are you taking them." George: "To the pigs, my lord." "Quite right," was the nobleman's reply, "let me see the pigs enjoy them." To the pigs they went, but the animals not being sufficiently hungry to eat Cauliflowers, only turned them over and left them. That was enough for the owner, who sent me word that the Cauliflowers were "too large—for the pigs."

My practice has since been to plant closely and to produce a greater number of close heads 3 or 4 inches in diameter, instead of planting widely and growing fewer heads a foot across.

Yet while I have always found that small vegetables of the kinds named have been most esteemed, I have found the case quite different with Asparagus. I have never had a call for small Asparagus except for soups; on the contrary, the finer have been the heads the more they have been valued. Experience has told me that superior Asparagus can only be grown by having the soil rich and the plants thinly planted. When "A KITCHEN GARDENER" asserts (on page 284) "that Asparagus planted 1 foot apart will produce as strong stems as those grown 3 feet apart, as it is only a question of soil," he argues against himself and his own practice of growing other vegetables. It were strange that close planting should

reduce the size of vegetables generally and not affect Asparagus. Nature knows no such vagaries. I will not further criticise your correspondent's letter, but will ask him to do as I have done—prove the matter by experience.

I do not accept the correction on the page quoted, that it is a mistake to write disparagingly on the crowding of Asparagus. At the same time I do not so much object to the growing of four rows in beds 4 feet wide, as recommended by "A KITCHEN GARDENER," if he had not recommended alleys of 18 inches between the beds. Long-lasting beds yielding superior produce cannot be maintained by such a system of overcrowding. To illustrate the matter practically let me state that nearly twenty years ago a number of Asparagus beds were condemned as being "worn-out." They were to be dug up and the best crowns forced. Instead of commencing at the outside of the quarter and clearing all the beds away every alternate bed was removed, and the additional air admitted to the plants remaining, with good cultivation, had such a beneficial effect on the condemned "worn-out" beds that they are profitable beds now. "A KITCHEN GARDENER" generally communicates sound and excellent practice, but he must permit me to say that I do not believe in growing Asparagus in a manner which necessitates the making of new beds every "ten or twelve years."—A NORTHERN GARDENER.

BALSAMS.

Few summer-flowering greenhouse and conservatory plants are more easily cultivated than Balsams, and few plants are seen, as a rule, in worse condition. If not killed they are spoiled by kindness. Balsam seed germinates quickly, and the plants grow with great rapidity in a moist high temperature, hence the plants are spoiled, the reason being, in nine cases out of ten, because the seed was sown too soon. Unless Balsams have abundance of light and air as well as heat and moisture good specimens cannot be produced. When suitable conveniences are provided, such as shelves near the glass in light well-heated houses, Balsam seed may be sown as early as March, and then with good attention fine specimens are produced during the summer; but in the majority of gardens such means are not afforded, and the plants, like many others, have to be grown on the best-way-you-can system. In such cases let me advise those essaying the cultivation of Balsams not to sow the seed until the last week of April or the first week of May. These plants are extremely ornamental when well grown. They need not necessarily be large, but may be flowered in 6 or 7-inch pots; then if they are dwarf, stout, and well branched, are covered with fine double flowers and rich green foliage, they are sure to be admired. But, on the contrary, if the plants are "long and lanky," requiring tall stakes to sustain them, and if the flowers are small and thin, the foliage greenish yellow, and insects numerous—as they generally are under such conditions—then Balsams are of all plants the most miserable.

If anyone wishes to see stout and sturdy young plants of Balsams let him note the thousands that are offered for sale in June at 1d. each by the costermongers of London. In very few gentlemen's gardens can such dwarf fat-stemmed plants be seen as those raised in shallow boxes by the market growers. The secret is that the seed is sown late and the plants are raised with but little artificial heat. If the seed is sown early and thickly, and the seedlings are raised in a moist close cucumber frame, and from thence transferred, it may be to a vinery, it is impossible to grow the plants in a creditable manner. Far better is it, when better conveniences than those are not afforded, to defer the sowing of the seed until the weather is warm enough to enable the plants being raised and grown in so-called cold frames, but which, however, are not "cold" in May, but warm if ventilated carefully during the day, closed early in the afternoon, and protected with mats at night; at any rate, they are warm enough for growing Balsams, and growing them well.

It may be well to state here that a very high temperature is not requisite for the germination of Balsam seed. If a temperature of 60° can be maintained in the soil, and the minimum temperature of the air is 55°, sturdy and healthy young plants can be raised. At those temperatures germination will be slow, and on that account the more satisfactory. When the seed is made to germinate quickly in a high temperature the cotyledons are small and thin, and do not give that nourishment to the young plant that it demands, and that it is the mission of the seed leaves to furnish; but, on the contrary,

when germination is slow the cotyledons are stout and fleshy, and the stems of the young plants become stout in the same proportion.

If anyone desires to perceive the difference in the size and texture of the seed leaves of Balsams raised under a high temperature on the one hand and a moderately cool one on the other, let him sow seed in a hot close cucumber frame, where it will vegetate rapidly, and sow also in rich light soil on a warm border in the open air in June. The difference in the plants a few days after appearing above ground will be found very striking and altogether in favour of those raised in the cooler medium. It is such plants as those raised naturally that the cultivator should endeavour to raise artificially. Their seed leaves will be large and fleshy, and will rest, or nearly so, on the surface of the soil when the first pair of proper leaves are formed. If that is accomplished a very simple but highly important phase in the cultivation of Balsams is attained. If after that stage a steadily increasing temperature is afforded, and abundance of light and air, if rich rough soil is provided, and the plants are shifted onwards before they are in any manner rootbound until they are placed in the pots in which they are to flower, satisfactory plants are certain of being produced; but, on the contrary, if the plants are raised at first in a very high temperature where they elongate rapidly, and are then transferred, as is so often the case, into a temperature several degrees lower, a check is given which will militate against the aim of the cultivator. The latter is a process totally opposed to Nature, and is a matter of more importance, perhaps, than is generally recognised by gardeners. Nature, it may be useful to note, sows her seeds in a cool medium, and increases the temperature with the growth of the plants. If growers of Balsams will do the same, and will increase the nourishment given to the plants in the same ratio, "spindle-shanked" Balsams will be the exception instead of the rule.

It is hardly necessary to go into details as to potting, &c., of these beautiful plants, since the general principles of culture are given which will enable the intelligent gardener or amateur to attain success if he seeks it with diligence.—A MARKET GROWER.

REMOVING RASPBERRIES.

I do not quite understand "WILTSHIRE RECTOR's" question, but I conclude that he considers it is best to remove the canes every few years. I will not find fault with him on that score, as I always hold that it is best for each one to practise that which they find serves them best; that is what I call really practical gardening. There can be no hard-and-fast lines drawn in such subjects as this.

In the matter of removing Raspberries occasionally there always will be difference of opinion, but simply using the word "occasionally" does not seem to me to be sufficiently defined; it may mean few or many years, but how many? The answer must be found in each one's experience. No stated time can be named as applicable in all cases. Age must not necessarily be a reason for moving Raspberry canes, for as long as they are fruitful the object required is gained. If we have a poor worn-out plantation, plant a new one by all means; on the other hand, by no means make a new one if the old plants are doing fairly well, unless you do not object to be without fruit for a few years. I could hardly persuade myself that any practical gardener would advocate a practice of removing canes annually, biennially, or at any stated period, for a more precarious practice no one could follow. A fact or two bearing on this subject will not be out of place. I will simply record them and leave them to speak for themselves.

For more years than anyone seems to know a fine plantation of Raspberries had grown here. In order to have all the fruit in one quarter the young canes were moved to that quarter. That was five or six years since. The result has been such a scarcity of fruit that has not been known for I daresay thirty or forty years. The first planting was made under the care of that good gardener, as well as good soldier and gentleman, the first Lord Hill. I have been working away at the new quarter of canes for four years, and have only now brought them into a good bearing condition. I may state that the ground, in which they were planted is naturally unsuitable for Raspberries.

I have yet another case to record. Three years since I planted good canes in good soil, and they are only now just coming into good bearing condition—I mean bearing in such a manner that it will pay to cover them with nets to protect the fruit from birds.

I will note one other instance relating to this subject. I know of a plantation of Raspberries in a gentleman's garden in Devonshire. Everything was done that could be done to produce really good canes and crops. Canes planted three or four years produced little or no fruit. The gardener came to the conclusion that they were planted too far apart, and had others planted between them, and the same year that these new canes were planted between the others the older rows produced a very fine crop. The gardener decided that it was really by planting between that had induced the others to bear. How little could that man have known of the character of Raspberry canes! It was simply that the first-planted canes had become thoroughly established, and then they bore well; but, mind, it took four years to do this. I must have a word or two more on this subject in answer to "WILTSHIRE RECTOR'S" observations.—JOHN TAYLOR, *Hardwicke Grange*.

JUDGING ROSES.

I HAVE been much interested in the discussion which has now been carried on for some weeks in the Journal on the subject of judging Roses, and intended to write on the subject some time ago, yet the time passed by without my doing so; and now I consider that my friend "WYLD SAVAGE" in his letter of March 28th has, as it were, challenged me to give my opinion and back him up in his preference to form *versus* size.

I quite see and follow Mr. Pochin's remark "that this might have been that, but that can never be this," and I also say without fear of contradiction that he is about the best judge of a Rose in England; but with all due deference to his judgment I think form is before size. I mean to say that if I were judging at eleven o'clock and had to decide on the merits of two Roses, the one larger, which had been at its best at half-past ten, the other smaller, rather more perfect in form, and would be at its best say at 11.30, I should decide in favour of the latter, for I believe that the moment a Rose is past its best in the matter of perfection of form and brilliancy of colour, although it may increase in size, it is worthless in a box of show Roses; but when you have equal form, equally well-shaped petals, equal colour and foliage, no judge could or would hesitate for a moment in giving the palm to the box with the largest blooms. I therefore agree with "WYLD SAVAGE" in his order of points:—1st, form; 2nd, colour and freshness; 3rd, substance and good foliage; 4th, size. In my opinion size in a Rose is one of the most difficult points to judge, as two blooms of the same Rose (take for instance, Etienne Levet) exactly the same size may be very different if one is cut from a cutback and the other from a maiden plant. One is full of "stuff," if I may so express myself, whilst the other is thinner in petal, and, to attain the same size as the one cut from the maiden, must be a little older in growth. I mean by this that one loses form, though perhaps only in the slightest degree, to attain size, whilst the other has size and form combined, and when like this size of course is a most important point.

I regret as much as Mr. W. Wilson Saunders does that so many Roses are now raised without scent; but it would be hardly possible to disqualify a Rose otherwise perfect in form on account of its lacking scent.

Now as to the respective merits of Teas and Hybrid Perpetuals shown together in the same box; though passionately devoted to Teas I cannot see with justice that they ought to have an extra point simply because they are Teas. The argument in their favour of the difficulty in growing them cannot be entertained, as they are much easier to grow to perfection than such Roses as Marquise de Mortemart, Madame Furtado, and a few other Hybrid Perpetuals; but I do think that many judges would be influenced by a few Teas judiciously interspersed if in themselves they were equal to the Hybrid Perpetuals in the same box, because such colours as Maréchal Niel, Souvenir d'un Ami, Souvenir d'Elise, Cloth of Gold, *cum multis aliis*, relieve in a most wonderful manner the too (frequently unavoidable) great monotony in the various shades of reds and pinks; and here Mr. Cant of Colchester gives the soundest advice, and with which advice I most cordially agree, "that it is of the highest importance when staging a box of Roses to have a variety of colour."

I see that it is the opinion of some of your correspondents that judges should take into consideration the distance Roses have travelled, and make an allowance for those cut the day before which are shown against those freshly gathered. Would

that this could be done, as I believe that the Herefordshire Rose-growers are longer on their journey and have more difficulties to contend against in the transit of their Roses than any others who show at the London exhibitions. But this can never be. Roses must be judged on their own merits without any allowance whatsoever at the time the judges too often find them opening their eyes and peeping at them; and, as Mr. Baker says, "Let the best Roses win."

I think with the majority of your writers that some rules should be drawn up by the National Rose Society, for surely they would be a guidance to some judges, who, when asked to judge at country shows, honestly confess that they do not consider themselves equal to judging Roses, but in default of anyone present better will do their best; and my experience is that they do as a rule judge most conscientiously, but frequently on wrong premises, thinking that a lovely truly grown Rose like the Duke of Wellington or Comtesse Cécile de Chabillant cannot possibly have a chance against a gigantic Paul Neyron, and most frequently go in for size without any regard to quality.

I also think three judges ought in every class to be appointed, and, further than this, that they ought to be chosen from different points of the compass, so that in every case there would be three *ex parte* judgments.—THOMAS JOWITT.

P.S.—Since writing the above I have read Mr. Pochin's letter of April 11th, and I hope that neither he nor anyone else will think by my letter that I advocate small blooms: nothing of the sort, the larger the better, but a smaller bloom with form in preference to any bloom however big without form. I therefore put size last, because I think if size is insisted upon as the *ne plus ultra* many judges may be apt to give prizes for Roses which have size and size only to recommend them, with flat centres too often, and in other respects not equal in my idea to a much smaller Rose with a grand high centre and fine colouring. Mr. Pochin also gives me the credit of showing magnificent blooms, and I believe—though perhaps it is only my vanity which makes me think this—that I can grow Roses as large as anyone; he will therefore know that I do not advocate small blooms because Grapes are sour. But I have in more than one instance seen prizes given to Roses on account of size though all the bloom was off them; and I myself was told once pretty plainly of my bad judgment when my co-judges with myself were unanimous in giving the award to smaller but much fresher blooms, whilst the unsuccessful exhibitor, or rather his foreman, raved about the size of his washed-out blooms.

I DO not at all feel inclined to throw up the sponge in this controversy, nor indeed do I think I have done so, as my friend Mr. Pochin suggests (for even though we differ in an important point I hope I may still consider him a friend); but I hope to show him that he entirely begs the question so far as I am concerned.

Mr. Pochin (*vide* his article in the Journal) puts size first. I put form first. But this by no means proves that I underrate the value of size, still less does it show that I place medium-sized Roses before large Roses. What I say, and what my articles have over and over again stated is, that it is better to have medium-sized blooms of good form and freshness than large coarse overblown blooms.

If you have form and size combined then undoubtedly you have the finest blooms. Mr. Peach is quite right. I struggle, as do all of us, to get large blooms, but not to sacrifice form at the cost of size.

Mr. Jowitt's blooms at St. James's Hall were conspicuous for both form and size, so that undoubtedly they were the best Roses that could be brought; but if they had had merely size without form the result would not have been the same, as I am confident that Mr. George Paul and Mr. Cant, two of the judges on that occasion, would have given the first prize to Mr. Baker.—WYLD SAVAGE.

NATIONAL CARNATION AND PICOTEE SOCIETY.

THE arrangements have now been completed for the next southern Exhibition of this Society. It will be held at the Royal Horticultural Society's gardens on Tuesday July 16th, a date which will most probably, if we have anything of a fine season, suit the growers of the flower in the south of England. The long-continued illness of Mr. Dodwell, which all lovers of his favourite flowers must regret, has not enabled him to take so active a part in it as last year, and therefore it is the more

incumbent on all who take an interest in these flowers to put their shoulders to the wheel and ensure a successful exhibition. It must be remembered that it is entirely dependant on the subscriptions of its members, as there is no gate money to be received, so that unless these are liberal the prize list cannot be so liberal as the Committee would wish.—D., Deal.

PERPLEXITIES.

I WAS once in a bookseller's shop obtaining a monthly part of a book on garden management. There chanced to be in at the same time an old gardener who did not hesitate to speak disparagingly both of books on gardening generally and of those who read them. As I was very young and inexperienced I did not venture to gainsay him; and yet, although in the main he was wrong, I am afraid he had at least some slight justification for saying "There has been more nonsense written about gardening than any other business going." These are not my words, and they do not exactly express my meaning; but in reading we do meet with contradictions in instructions that prevent us denouncing the old gardener referred to too harshly.

I can only quote one or two cases in point at present. Here is one: In giving directions for planting fruit trees the following occurs—"The stations being prepared and the trees having arrived, it is necessary to prune the roots by taking off all the small fibres and shortening the larger roots to about 6 inches from the stem. . . . Two or three spurs are sufficient, but if there be more good ones they may remain after being carefully pruned." I am not prepared to cite any authority in opposition to this, but I should like to know, where these instructions have been carried out, what the results have been.

Again, in a catalogue issued by an eminent firm last autumn, in remarks on the cultivation of Hyacinths I find the following—"Use the soil in the crude rough state, pressing the pot quite full and firmly; then add a dash of gritty matter to the surface, taking each bulb firmly in hand and pressing it down by force into its bed, making the soil firm all round and finishing off quite level." I have certainly seen that system condemned, but cannot recollect when and where just now; but in my own practice I once potted Hyacinths on that principle, "pressing them down into the soil," and when I brought them from seclusion they were each one elevated on a quantity of white stilts as if on a journey to fresh quarters.

I now turn to another subject—namely, the pruning of Gooseberry trees. Your able contributor "A KITCHEN GARDENER" says in our Journal of December 27th last, "When the bushes have attained their full size cut the young wood close in to the old stems annually." I expressed my opinion on this subject some time since, and it is not necessary to repeat it, but I will quote editorial opinion in answer to a correspondent on August 31st, 1876—"Bushes 6 feet through and touching each other may, if the growth is crowded, be thinned, &c., bearing in mind that the fruit of Gooseberries and Black Currants will be mostly produced on the young wood."

I have no doubt hundreds look over our Journal and kindred publications for information, and when an amateur finds such evident contradictions must he not feel somewhat bewildered? Not for one moment would I condemn the practice of freely expressing our opinions on different subjects and detailing the means by which we may have met with some measure of success, but I think the dogmatic manner in which some "lay down the law," as if that and that only was the way in which a certain operation can be performed tends to the forming of opinions similar to those of my old friend mentioned at the beginning of this communication.—J. J., Lancashire.

["A KITCHEN GARDENER'S" article read in its entirety represents sound practice; the "answer" quoted is also correct. The "contradiction" discovered is more apparent than real.—Eds.]

RICHARDSON'S HOODED TUBULAR BOILER.

IF all the new Peas that had been introduced within our memory had fulfilled the conditions claimed for them of each new variety being a week earlier than the earliest sorts then existing, we should have green Peas in March instead of having to wait until May and June. So with boilers. If every new boiler had possessed to the full all the advantages claimed for it our garden structures would now be heated for next to nothing. A few years ago the horticultural world was startled by the announcement that that desideratum had been actually

accomplished. We were not caught with the chaff that was scattered so freely anent the lime-heating innovation, and we have the satisfaction of not having published anything relating thereto that led to great expenditure and proportionate disappointment. The heating of garden structures cannot be reduced to nothing, but by the skill and ingenuity of hot-water engineers boilers are produced that reduce the cost of heating to a minimum. One more addition to the many excellent boilers in operation is introduced by the well-known respectable Darlington firm of W. Richardson & Co. This boiler, as

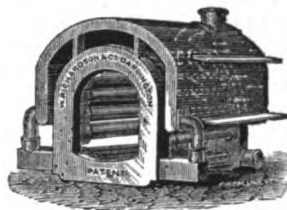


Fig. 42.

may be seen by reference to the accompanying figures, is constructed on sound principles, and we shall be much surprised if it does not prove quick in its action and powerful. Not only does the flame encircle every part of the boiler, but a great

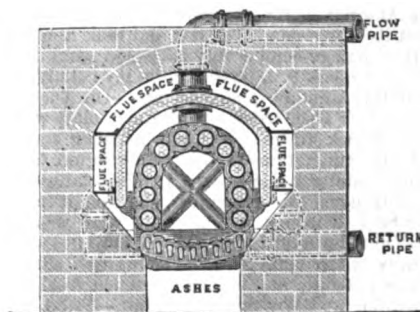


Fig. 43.

portion of the heat acts directly and immediately on the inner surfaces of the boiler, which is a point of very great importance. The boiler is a combination of the tubular and saddle, and the alliance of the two systems is effected in such a satisfactory manner that renders the apparatus worthy of the notice of horticulturists.

But while the form of a boiler exerts much influence in the economical extraction and diffusion of heat, it must not be forgotten that the nature of fuel exerts a corresponding influence. A very ordinary boiler with good fuel is equal in heating results to one superior in point of arrangement and construction but served with fuel of an inferior character. This point is sometimes forgotten when the merits of boilers are estimated under necessarily varying conditions. Another point also of great moment is the arrangement of the pipes in connection with a boiler. We have known boilers condemned through no fault of their own. The best boiler ever devised may be rendered inoperative by the faulty arrangement of the pipes. These are matters that must never be left out of consideration in estimating the relative merits of boilers.

We think the apparatus figured possesses real merit, and it is submitted for comparison with other boilers which may be found in previous issues of this Journal.

ESCALLONIA MACRANTHA.

OF all the shrubs that cheer the winter and early spring months I know of none to take precedence of the *Escallonia macrantha*; its dark green foliage beautifully intermixed with an abundance of bright rose-coloured blossoms gives it a very cheerful appearance, and especially when anything like a flowering plant is a rarity in the open air. In my opinion this noble shrub deserves a prominent position in every shrubbery. It will also bear comparison with any other shrub planted in the grass as a single specimen. Having in charge several beautiful specimens of the above, I will give the dimensions of two of the more noteworthy amongst them. No. 1 is 10 feet high, 17 feet in diameter, and 51 feet in circumference;

it is close and compact being dressed once a year with the clipping shears. No. 2, *Escallonia macrantha rosea*, is 13 feet high, 19 feet in diameter, and 62 feet in circumference. This plant is allowed to grow at will and wears a most flourishing appearance.—ANDREW CAMPBELL, *Muckross Gardens*.

AN EXTRAORDINARY ROSE.

"WYLD SAVAGE" gives an account of an extraordinary Marie Baumann shown by Mr. Baker, and asks if anyone can give a similar instance. I think I can give an account of a still more wonderful Rose. The Exeter Show in 1876 was on Friday June 23rd. On Thursday morning the 22nd I cut a bloom of America from a maiden shoot (Briar) at five o'clock A.M., and took it with other Roses to Exeter by the eight o'clock train that evening, staging it amongst my other Teas, with which I had a great fight with "Hercules" for Mr. Paul's pretty cup which he so kindly gave for twelve best Teas. I came in second. "WYLD SAVAGE" mentions this Rose in your Journal of the 29th.

I gave all my Roses to an old friend, who carried them off and put them in a vase. At the same time Mr. Baker carried me off to his hospitable house; and I can truly say that if he starves his Roses—and they say he does—in the same way that his good lady starves her guests he need not fear winning every first prize in England. The next day I lunched at the house to which my Roses had been taken; and in the afternoon, seeing America looking most beautiful, I begged it back again. I put it in my small Tea box and took it home under the seat of the carriage—not a very cool place, and on arriving home at eleven o'clock P.M. placed it in my cellar. There it remained Sunday, Monday, and Tuesday. On Tuesday evening at seven o'clock I packed it again and took it with others by the eight o'clock train to London, arriving there at five o'clock in the morning, crossed from Paddington to Victoria in a "growler," and travelled down to Maidstone on one of the hottest mornings I ever remember, showing it in a box of Teas with which I won a prize. This Rose was therefore gathered on Thursday morning at five A.M., had at least twenty-five hours' railway travelling, was shown at two shows as far apart nearly as possible, and was in existence from Thursday morning until the next Wednesday evening.—THOS. JOWITT.

ROYAL HORTICULTURAL SOCIETY.

APRIL 16TH.

FLORAL COMMITTEE.—Dr. Denny in the chair. We have to notice one of the most attractive exhibitions that has been arranged in the conservatory for a long time past. The groups arranged by the several exhibitors contained many rare and choice plants, and there was something in every collection that merited close examination.

Taking the groups in their order of arrangement, we come first to an unique collection of Orchids from Sir Trevor Lawrence, Bart., Burford Lodge, Reigate. Every plant in the group was worthy of notice. *Cypripedium calceolatum*, with sixteen fine flowers, had a remarkable effect by the long pendent tails drooping even below the bottom of the pot; some smaller specimens of the same Orchid had extremely fine flowers. *Tricopillias lepidia*, coccinea, and *suavis* were in admirable condition, and *Cymbidium eburneum* was represented by grand flowers. *Saccolabium ampullaceum*, *Lycaste Skinneri* *Rubella*, various *Odontoglossa* including O. Hallii, O. Alexandræ, O. cirrhosum, O. Roezlii, and O. gloriosum, *Masdevallia Harryana*, *Dendrobium cariniferum*, *Cattleya citrina*, and *Lælia cinnabarina* were all in excellent condition. Besides the Orchids *Spirea palmata elegans* and a good plant of *Griffinia ornata* were noticeable; and not less so was *Freesia Leichtliniana*, which diffused its powerful perfume, and its primrose-coloured *Ixia*-like flowers were extremely attractive. A gold Banksian medal was awarded for this collection.

Messrs. Rollisson & Sons, Tooting, exhibited a large and very fine group in which admirably bloomed *Azaleas* predominated. These were low standard plants, having heads 2 to 3 feet in diameter. Very striking were *Rachel Von Varnhagen*, pink; *Charles Leirens*, double scarlet; Mr. Wright, white flaked rose; and *Punctulata*, scarlet and white, some of the flowers being self-coloured, and others striped and spotted. The central plant in this group was a grand example of *Arpophyllum spicatum*, with upwards of thirty spikes; new *Dracenas Baptistii* and *Berkleyi* being very highly coloured; *Erica tubæformis*, very rich; *Boronia*, *Genistas*, and *Palms* completed the group, for which a gold Banksian medal was awarded. The adjoining collection was arranged by Messrs. Cutbush & Son, Highgate, and was composed of admirably bloomed *Rhododendrons* in good varieties; *Azaleas*, *Cordylines*, *Palms*, and the rich old greenhouse plant *Hovea Celsii*. A silver-gilt medal was voted for the group.

We next arrive at an extensive, varied, and remarkably fine contribution from Messrs. Veitch. It was difficult to know which to admire most, the forced hardy shrubs—*Rhododendrons*, scarlet and double white *Thorns*, *Laburnums*, hardy *Azaleas*, &c.—the gorgeous group of *Clematises*, the plants being in 7 and 8-inch pots, or the fine bank of *Roses*. The blooms on these plants (*Roses*) were not only extremely fine but were remarkable for their high colour. In the latter respect we never saw *Roses* to surpass if equal them at this period of the year. Amongst the dark varieties *Beauty of Waltham*, *Felix Genero*, and *Annie Laxton* were very fine; and as a light *Rose* *Duchesse de Valombrosa* was conspicuous by its excellence. The *Teas*—*Rubens*, *Souvenir d'un Ami*, and *Madame de St. Joseph*—were in admirable condition. Amongst the *Clematises* *Sir Garnet Wolseley* was perhaps the finest of the dark varieties. *Albert Victor* was also excellent, as indeed was *Lady Londesborough*, silvery lilac; and *Miss Bateman* was the best of the whites. It is impossible to overestimate the value of such plants as these and *Roses* for conservatory decoration at this season of the year. Messrs. Veitch also exhibited some remarkable plants of the *Otaheite Orange* laden with fruit. These plants, which were in 6-inch pots, were only about 18 inches high, and each plant was bearing from twenty to thirty *Oranges*. The same firm also arranged some very fine *Hippeastrums*, *Junius* and *Hero* of *Plevna* were remarkable for their richness (crimson) and substance of petals. They also exhibited very good *Gloxinias* and *Ferns*, and were worthily awarded a gold Banksian medal.

Mr. Wills arranged a very large and very charming group, and one not easy to describe. The groundwork, however, was composed of *Ferns*, from which thousands of *Lily* of the *Valley* peered; dotted here and there and rising above them were small standard *Azaleas*, choice *Dracenas*, *Crotons*, &c., and several *Orchids*, the whole being shaded by the fronds of the taller *Palms*. Near the front were some excellent *Gloxinias* and baskets of *Maréchal Neil* *Roses* and *Stephanotis*, the whole being margined with *Lycopods*. *Dracenas Ernesti*, *Willisi*, *terminalis alba* and *igneas* were noticeable on account of their distinct colours being represented on such small plants. *Nidularium Meyendorffii* also commanded attention. A gold Banksian medal was voted to Mr. Wills for the artistic arrangement of the collection. Between Mr. Wills's and Mr. Aldous's collections, Mr. Walker, Thame, Oxon, exhibited a box of thirty-six *Maréchal Niel* *Roses* really magnificent. The blooms were as near perfection as we think it possible for *Roses* to be, and the Committee marked their approval of their great excellence by voting Mr. Walker a cultural commendation for them. *Gloire de Dijon* and other varieties were also good, and merited the vote of thanks awarded.

Mr. Aldous's collection was composed chiefly of such flowering plants as *Lilies*, *Cinerarias*, *Pelargoniums*, *Hydrangeas*, *Spiræas*, *Heaths*, &c., interspersed with *Palms* and *Ferns*. A silver medal was awarded.

Mr. B. S. Williams's group was an extensive one, and was gorgeous by the many *Amaryllises* that it contained. All the varieties of these were good, the finest, perhaps, being *Oriental*, scarlet, large and of excellent form. Amongst the *Orchids* were *Dendrobium Falconeri*, a fine variety; *Wardianum*, *crassinode*, *Pierardi*, and *Schroederi*; *Cattleya Mendeli*, excellent; *Masdevallia ignea* and *Aërides Fieldingii*, very fine. *Dracenas Berkleyi*, *Renardiae*, *Mrs. Bause*, and *Scottiae* were in excellent colour; they are undoubtedly valuable varieties. *Psychotria leucantha*, a dwarf plant with large *Magnolia*-like foliage and a terminal head of waxy white flowers, was noticeable in the collection, as were also *Sarracénias* and grand pyramids of *Azalea amœna*. A gold Banksian medal was awarded. First-class certificates were further granted to Mr. Williams for a new *Palm*, *Wallichia zebrina*. This is highly distinct on account of the zebra-like markings of the long leafstalks, which support alternately arranged leaflets 8 inches long and 8 broad at the base, glossy and bright green; also for *Amaryllis E. Pilgrim*, flower medium-sized, petals well formed and of great substance; colour clear glowing scarlet with a white stripe down each segment. A variety of undoubted merit.

Mr. Bull exhibited a few very choice plants. First-class certificates were awarded to *Davallia filijensis*, a *Fern* of chaste elegance; and for *Adiantum tetraphyllum gracile*, a low-growing highly distinct plant from South America. The young fronds are bronzy pink in colour, and are very glossy and attractive; distinct and good. A botanical certificate was awarded to *Allocasia Johnstonii*, the leaves being sagittate and stems jointed. A vote of thanks was further awarded to the same exhibitor for *Lastrea cristata variegata*, a distinct and attractive *Fern* from Japan. Mr. Bull also exhibited a cone, resembling a gigantic *Pine Apple*, of *Encephalartos lanuginosus*, which had been produced by a plant from Mr. Bull's establishment, and grown by Mr. Tillett of Norwich. The weight of the cone was 204 lbs. At each end of the conservatory Messrs. Barr & Sugden had arranged imposing groups of *Daffodils*. The great variety represented in these groups, which combined in a remarkable degree brilliancy with chasteness, warranted the Committee in voting a gold Banksian medal for them. Besides the honours above recorded first-class certificates were awarded to Messrs. W. Rollisson & Sons for

Grevillea robusta var. *filicifolia*, a stately plant with drooping foliage of great elegance, a valuable acquisition to decorative plants; to Mr. Green, gardener to Sir G. Macleay for *Dietes Huttoni*, a small Iris-like plant, yellow striped with maroon, very distinct; to Messrs. Veitch for *Crinum bracteatum*; to Mr. R. Parker for *Caltha palustris* fl.-pl. minor, very dwarf, double, and floriferous; and to the same exhibitor for *Megasia purpurascens*, very distinct, colour purplish crimson, a fine plant for pots or borders.

Votes of thanks were awarded to Mr. Mills, gardener to Lord Rendlesham, for cut blooms of *Cattleya Skinneri*; to Mr. J. Scott for cut blooms of *Maréchal Niel* Roses; to Mr. Dean for hardy spring flowers; to Mr. G. F. Wilson for new seedling *Primrose Alice Wilson*, distinct; to Mr. Green, gardener to Sir G. Macleay, for terrestrial Orchids in flower; to the Hon. and Rev. T. J. Boscawen for *Amaryllis Beauty of Cornwall*; to Mr. Hooper, Bath, for *Pansies*, fine flowers and rich colours; to Mr. Ambler, gardener to Mrs. Jennings, for a basket of Alpine *Primulas*; to Mr. Bull for *Odontoglossums*; to Messrs. Lane & Son for a very fine collection of cut Roses; and to Messrs. F. & A. Smith, Dulwich, for *Cinerarias*, the pips being exhibited in sand and representing very fine varieties.

A group of *Azaleas* and a collection of border Alpine *Auriculas* were sent from the Society's Gardens at Chiswick. They were very attractive.

The FRUIT COMMITTEE had scarcely any duties to perform. Mr. Wildsmith, Heckfield, sent an excellent dish of *Vioomtesse Hérisart* de Thury Strawberries; and Mr. Woodbridge, Syon House, sent very fine heads of the Purple Seakale, to both of which the thanks of the Committee were awarded.

Altogether the Exhibition was a superior one, and it was unfortunate that the weather was such as to prevent the attendance of many visitors. In the morning rain fell freely, and in the afternoon a mist settled over the metropolis which rendered the day one of the most gloomy of the season.

During the afternoon Mr. Jennings, the Assistant Secretary, read an interesting paper on the International Exhibition recently held at Ghent.

Mr. Jennings' lecture gave rise to a discussion as to the advisability of holding a great international horticultural exhibition in England. Several horticulturists present having spoken strongly in support of such a gathering, Lord Alfred Churchill stated that the Council would meet to consider the best means of complying with the wishes expressed; indeed, Mr. Haughton stated that the Council had already been in communication with their landlords, the Commissioners for the Exhibition of 1861, on the subject referred to. We emphatically support the proposition so opportunely made, and trust that every effort will be made to carry it out successfully.

NOVELTIES IN THE ROYAL GARDENS, KEW.

Of high classic interest is the common Daffodil "that comes before the swallow dares, and takes the winds of March with beauty;" and although the forms we have to mention were unknown to the poets, yet still they no less deserve their praises sung. Before us we have magnificent flowers of the garden varieties *Emperor* and *Empress*, by which we are tempted to mention first of all in our notes those of their rarer allies now to be seen in the herbaceous ground. *Narcissus Graellsii* is a yellowish white and charming form of *N. Bulbocodium*. *N. apodanthes*, otherwise *N. rupicola*, is a scarce and extremely pretty form of *N. juncifolius* with a deeply lobed corona and slightly glaucous leaves. *N. triandrus* is very distinct and charming; the perianth is lemon yellow, and so sharply reflexed as to possess an appearance and character quite its own in the *Mediocoronatæ* to which it belongs. Its cup is paler in colour and has an inflated appearance by the narrowing of the mouth. *N. poculiformis* has been known in gardens for the last two centuries, and being unknown in a wild state is considered a hybrid. It has creamy white flowers deliciously scented, and in gardens is often known as *N. montanus*. Just on the opposite side of the walk is a well-established plant of *Bongardia Ranwolffii*. It is extremely rare, and has here flourished a considerable time under a handlight. The flowers are the size of a sixpence, bright golden yellow, and in considerable number. Every leaflet has a dark zone much as in some Clovers, by which it has an unique appearance. *Iris sambucina aurea*, to which we have before drawn attention, is now in its best appearances. The leaves are entirely yellow, and we know of nothing similar in the genus. It originated at Kew, and has now attained the size of a respectable clump.

In the Cape house of the new range we are first brought to a stand by *Sonchus platylepis*, a Sowthistle it is true, yet we can say confidently the choicest and best of the genus. It

bears about the same relation to the common Sowthistle as *Senecio pulcher* to Groundsel. The flowers of this, however, are bright yellow, and each flower head measures $2\frac{1}{2}$ inches across, of which about six compose the inflorescence. This is terminal and arises from a basin of pinnatifid leaves which alone form an ornamental feature. It is a striking phenomenon that herbaceous orders and genera of the Continents are represented frequently in the island floras of St. Helena and the Canaries by arboreal species. So this, a native of the Canaries, is possessed of a woody stem and shows no attempt at subterranean extension. In a wild state it is rare, and this possibly is the only plant under cultivation. Near this is a strange and rare *Pelargonium*, *P. Bowkeri*, from the Trans-Kei country of South Africa. It has peculiar red-brown flowers; the petals are cut into a fringe in a manner that no equal can be found in the genus; and the leaves, which first are pinnately divided, are further cut into thread-like divisions. This is probably the only specimen in cultivation. *Amphicome Emodi*, but for its cultivation here and in one or two other places, might be numbered among the good old greenhouse plants lost to the culture of recent years. The branches spread near the soil, and the leaves form a pretty tuft almost like Burnet, between which arise erect racemes of pink trumpet-shaped flowers with yellow throat. It came from the north of India, and was introduced about twenty-six years ago. *Speirantha convallarioides*, which is sufficiently described by its name as regards foliage, was figured first in the "Bot. Mag." as *Albuca Gardeni*, but to this genus it evidently does not belong. The flowers are pure white and star-like, in erect racemes equal in height to the leaves. It is rather of botanical than decorative interest. *Pentlandia miniata* is a charming Peruvian *Amaryllid* with crimson tubular flowers an inch long.

Vitis macropus, that most remarkable of all Vines, is just about to flower in the Succulent house. It has a thick gouty stem, from which the skin peels off in lamella as from the Birch. The stems are not ripened their entire length, but with the exception of a short portion are disarticulated and cast off at the end of the season, as are the leaves. These are composed of three or five very thick and fleshy leaflets covered with white hairs when young. The flowers are small and green, truly Vine-like in character. It comes from whence do several other vegetable wonders—notably the *Welwitschia mirabilis*—viz., Benguela and Angola of Western Tropical Africa.

The note may here be made, that the first *Welwitschias* that ever grew in this country are now growing at Kew and are likely to flourish, one indeed is known to have made roots. The leaves appear to issue from the solid stock at a constant rate of growth, always growing below and not apically. With this success it is not too much to hope that cones may yet be produced.

We have already referred to *Tydas Madame Heine* in the Begonia house as a really good winter-flowering variety, and now may say that it continues in as fine flower as ever. *Sciadocalyx digitaliflora* is next in point of beauty, and to this it adds the interest of a singular appearance. The calyx is of full size, while the corolla is yet of the smallest visible dimensions; the latter gradually grows to a much larger size than the former, and assumes a pinkish crimson colour with a mouth greenish and covered with many spots. This predevelopment of the calyx may be observed in the species of *Æschynanthus*. The calyx forms a comparatively long tube, down which you have to look to see the advancing corolla. Other noteworthy Gesnerads are *Gesnera rosea* and *G. tubiflora*, the latter an old and pure white-flowered friend of delicious perfume.

NOTES AND GLEANINGS.

THE EXTRAORDINARY RAIN which occurred in the south on the 11th inst., while it has done much damage by washing up the gravel and flowers in many gardens, has greatly benefited the shrubs and trees in the parks and gardens of London. Owing to the long term of dry weather and the unusual amount of dust in March the foliage of the shrubs had become so much encrusted with dirt as to render their appearance peculiarly unsightly. So black and dingy-looking were they that a slight shower had but little effect on them; but the nineteen hours of heavy downpouring rain has cleansed them thoroughly. The stems of trees are divested of soot, and the bark is fresher than we have seen it for a long time past; but the most marked change is noticeable in the evergreens. The

foliage of shrubs which a little more than a week ago was brown and rusty is now green and glossy, and the gold and silver variegated Hollies and Aucubas, which are so suitable for suburban gardens, are now fresh, bright, and cheerful. Great and lasting benefit cannot but result to the London trees and shrubs from the thorough cleansing they have sustained, for trees, like animals, must breathe to live.

— WE have received the schedules of the northern and southern divisions of the NATIONAL AURICULA SOCIETY, and remind those who are interested in the improvement and cultivation of these beautiful alpine flowers that the southern show will be held at the Crystal Palace on April 25th, and the northern show at the Town Hall, Manchester, on April 30th. In the case of the Crystal Palace gathering especially we think the date will prove a fortunate one—at any rate for southern growers, and we trust the Manchester meeting will be equally suitable to those who work so well to make it successful. The southern schedule provides twelve classes for Auriculas and three for Polyanthus. In the Auricula (show) classes fifty-four prizes are offered, ranging in amount from £4 to 3s., and there are nineteen prizes for Alpines, making a total of seventy-three classes. In the Polyanthus classes twelve prizes are offered. This comprehensive schedule and liberal scale of awards is sufficient evidence of the energy of the Hon. Sec., Mr. E. S. Dodwell, who has worked indefatigably in making the Auricula popular, as it deserves to be, in the south. A display of great extent and beauty is sure to be provided at Sydenham, and one worthy of attracting visitors from all parts of Britain. A still greater number of prizes are offered at the northern show, which is an "established institution," and has the honour of having the champion grower of England, the Rev. F. D. Horner, as its Hon. Sec. Both these branches merit much support and deserve to flourish.

— WE have received the schedule of the ROYAL HORTICULTURAL SOCIETY OF ABERDEEN, and find that provision is made for a summer and autumn show, at both of which silver cups are offered; but the dates of the shows and places of meeting are not announced.

— RUDGIA MACROPHYLLA, now flowering in the stove at Kew, is worthy of special attention. No more lovely plant is in flower, and we are greatly surprised that after being in the country more than eleven years it is so little known. The leaves are large and handsome, much over a foot long, and in form obovate-lanceolate, with lustrous dark green surface. The flowers are funnel-shaped, about 1½ inch long, collected together in a dense nearly spherical head more than 4 inches through. The buds and flowers, we should mention, are of the purest white. It comes from Rio de Janeiro, and evidently requires the treatment of *Medinilla*.

— ON a west wall in the gardens of J. Boustead, Esq., Wimbledon, is now blooming in its full beauty a very fine plant of *CEANOTHUS RIGIDUS*; it covers a space of nearly 24 feet by 12, and is one sheet of blue from top to bottom. It is certainly a very fine specimen, and admirably trained by Mr. Jordan, who prizes it very highly. This grand early-flowering shrub deserves more general cultivation both for the rapidity with which it covers a wall and its freeness in blooming in the early spring months.

— A COMMITTEE has recently been formed for obtaining an oil PORTRAIT OF MR. ROBERT MARNOCK, the well-known landscape gardener. The following gentlemen form the Committee:—Rev. Canon Hole, Professor Bentley, and Messrs. T. Spencer Wells, John Noble, John Waterer, George Paul, J. F. Meston, Harry Veitch, and Wm. Robinson. As it is probable that many who know Mr. Marnock and his work have not received any communication as to the intended presentation, the Committee have thought it well to announce publicly that subscriptions to the Marnock Portrait Fund will be received by the Treasurer, Mr. John Waterer, Bagshot, Surrey, or the Hon. Secretary, Mr. Wm. Robinson, 37, Southampton Street, Covent Garden, London, W.C. No further announcement will be made. The portrait will be executed by an artist of known excellence, and will be presented to Mr. Marnock himself.

— MR. W. TOMLINSON, for some time assistant forester at Belvoir Castle, has been appointed wood agent at Clumber Park, Notts, in place of the late Mr. Lister.

— MR. SCARGILL writes to us as follows:—"Respecting the ORIGIN OF THE GREEN ROSE, the old man who collects the seeds in the herbaceous ground at Kew tells me that the specimen there was brought by Sir H. Barkly from the West

Indies (Demerara he thinks), not later than 1852, and was labelled 'Sir H. Barkly's Green Rose.' He, however, added that it was taken to the West Indies by the French; and further, that Mr. Niven, Curator of Hull Botanic Gardens, could give all particulars. The specimen mentioned is now labelled 'Rosa certe,' which seems to indicate French origin."

— WITH a view to promote the CULTURE OF ASPARAGUS ON THE FRENCH SYSTEM Mr. Wm. Robinson intends giving a series of annual prizes, extending over a period of seven years. These prizes will be given in London, Edinburgh, Dublin, and the north and west of England in consecutive years. The first series of prizes will be given three years from the present planting season, and will be continued annually till 1887. The prizes will be given under the auspices of the horticultural society in each locality named. In the sixth and seventh years of the series—viz., in 1886 and 1887, the competition will be held in London, and will be open to American, French, Dutch, and all other Continental growers in addition to those in Britain. The prizes at each annual competition will be as follows: For the best hundred heads, first prize, five guineas; second, four guineas; third, three guineas; fourth, two guineas; fifth, one guinea. Extra special prizes will be added, open to all comers, in the international year's competition.

— THE RHOPALOCERA, OR BUTTERFLIES.—The position which these insects assume when at rest has clearly a reference to the comparative thickness of their bodies. The antennæ, or feelers, are generally more than half as long as the fore wings, are always more or less thickened or knobbed, and sometimes slightly hooked at the tip. In moths the antennæ are of various shapes; but even the transparent-winged Hawk Moths, and the Barnet Moths, which most resemble butterflies in this respect, have such differently shaped antennæ that this character would be alone amply sufficient to prevent their being mistaken for them. There is no European moth which has antennæ sufficiently resembling those of a butterfly to allow of its being mistaken for one. All European butterflies fly by day only, and seldom make their appearance in the morning till the sun has dried the dew off the grass. They never fly in the rain, and very little when the sun is obscured. In hot countries, on the contrary, many species, especially of dark colours, fly chiefly at dusk.—(*European Butterflies and Moths.*)

— THE value of FRUIT CROPS in the United States is estimated by the Government statistician at 140 million dollars annually, or about half the value of the Wheat crop.

GLADIOLI, ROSE JUDGING, &c.

I HAVE to thank "C. P. P." and "AN AMATEUR" for their observations on the failure of my Gladioli last season and wish I could derive any crumbs of comfort from them, but I fear I cannot. I hardly think that the climate of Yorkshire, as "C. P. P." suggests, is less favourable for them than Kent; for I am told by my friend Lord Hawke, whose own from the neighbourhood of Tadcaster have been exhibited in such grand form, that he never sees them finer anywhere than at the Show at Bishop Auckland; while I can testify that even still further north those grown by Mr. Galloway and others are of first-rate excellence. As to "AMATEUR's" suggestion that I should go back to the older varieties, a florist will hardly care to grow inferior varieties when he can get finer ones; and spikes with four or five flowers will not do now when he can have them with twelve or fourteen expanded flowers. Moreover, I do not believe that this would help me much, as the following simple fact will testify. I last season obtained from France a dozen bulbs of Meyerbeer, which has been out so many years that it can be had for thirty-five centimes, and yet of this number I lost more than one-half by disease. Now it is clear from this, I think, that neither having old varieties or imported bulbs will afford any immunity from disease. I am this year trying them in altogether fresh ground, and shall hope to report by-and-by the result.

With regard to Rose judging, I think the subject has been pretty well ventilated by this time, and nothing further perhaps requires to be said until the ideas of the National Rose Society on the subject see the light. I think Mr. Pochm has been rather hard on Mr. Camm, who, however, can well defend himself. As I have also with him made size a secondary point I would like to explain that my object was to denounce such Roses as Paul Neyron and Antoine Mouton. If you can get other Roses large without losing quality, then by all means

let us have size. My own observations were intended for this end, and I hold the same view with regard to all florists' flowers. If we can have size and quality by all means let us have them; but if not let size go by the board and quality remain, and I rather fancy that Mr. Camm means the same. I cannot agree, either, with those like Mr. Bensted, who contend that a good judge must be an exhibitor, unless, like all rules, it must have exceptions, for otherwise we should lose the services of some of our best judges. Would any Rose exhibitor like to see Mr. Peach or Mr. Wm. Paul excluded from the list of competent judges? and would the former be a bit better judge if he were to exhibit in a class or two? At any rate I hope, if all be well, that he will be amongst those who will assist at the adjudication of the National Show.

A word as to that wretch the woolly aphid. I received the other day from a well-known nursery some Alpine plants, and amongst them a plant of *Primula spectabilis*. On turning it out of the pot to place on the rockery I found the roots to be infested in a very remarkable manner by the woolly aphid. On remarking on it to the person who sent them he says it is a most troublesome pest, and that he finds it very difficult in getting in plants from so many different places to keep clear of it. It is evident, then, that although it has only lately been found on the florists' *Auricula* it has for some time infested other species, but being more hardy they have been enabled to resist it better, and now that attention has been aroused to the danger we may hope that its ravages may be stayed.—D., *Deal*.

MARÉCHAL NIEL ROSE.

THIS magnificent Rose is not so generally cultivated as it merits. In many gardens there is not a respectable-looking plant of it to be found, and in others it is not grown at all—an omission for which nothing else can compensate. When grown in pots or restricted as a dwarf or standard amongst others in the open air it has no chance of developing its true qualities, and those who only grow it in those ways may just about as well not grow it at all. To grow it in all its magnificence it must be planted out in a greenhouse or conservatory, and the branches be allowed to grow to their fullest extent. It is then that armfuls of splendid golden blooms are produced and their great loveliness is fully displayed.

There is no plant in existence that will produce such a quantity of valuable flowers as a *Maréchal Niel* Rose properly grown; and by growing it properly I do not mean that great attention must be paid to it; this it does not require. No plant under glass requires less attention, but what it does have must be of the proper kind. I think there are only two important points in the cultivation of this Rose which must have the best attention: the one is to give it plenty of nourishment at the root, and the other is to let the branches extend as much as possible, or at least convenient. A very favourable position is not necessary to its well-being. Back walls and low walls are positions where it will thrive. It may also be grown up pillars or on roofs, but here it is then liable to shade plants underneath.

The best *Maréchal Niel* Rose tree I have ever seen for its age is grown on the back wall of a Peach house here. Twelve months ago this plant had only three little branches on it about 10 inches or a foot long each. At the present time its aggregate growths are 300 feet long. Last summer it produced shoots as thick as a walking-cane and from 30 to 40 feet long. This spring these shoots emitted branches from every bud, and each of these has terminated in one, two, three, and four blooms which are just opening. This plant, which twelve months ago was only worth a few pence, is now worth pounds. It is on its roots, and was merely a sucker taken from the bottom of another plant. When it was planted two or three barrowloads of good loam, with a little lime rubbish and a large quantity of cow dung, was placed round the roots. There is no means of heating the house, and the Rose occupies a strip of wall underneath the standard Peach trees on the back wall. The trees on the trellis in front partially shade it. Ever since it was planted it has never been allowed to become dry at the root, and when it ceased growing in the autumn it was watered just the same as before with liquid manure. The lower shoots are so near the ground that many of the buds are resting on the soil. As many of the blooms will be cut with about a foot of wood and leaves attached this will be all the pruning it will receive, as the more buds that are left on the more shoots there will be emitted next spring

and the greater will be the quantity of blooms. Of course it is necessary to thin-out the shoots sometimes, but not as long as one branch does not actually rest on the top of another. The more growth there is the greater demand for support, and rich top-dressings of liquid manure must be given accordingly.

I wish I could say something more strongly in favour of this unique Rose, but the truth is it surpasses description: wherever a glass structure is erected for flower-growing *Maréchal Niel* should have a place in it.—M. M.

THE ROYAL HORTICULTURAL SHOW AT PRESTON.

ON the evening of the 9th inst. the third meeting of the Local Committee of the Royal Horticultural Society was held at the Town Hall, Preston. The special business was to receive a deputation from the Council of the Society at London. There was a very good attendance, including the Mayor (Alderman Satterthwaite), who presided, Messrs. W. F. Moore, R. Poole, Joseph Harding, T. Nevett, J. C. Ambler, W. Troughton (Manager of the Preston Nursery and Pleasure Garden Company), H. J. Elwes (a member of the London Council), S. Jennings (the recently-appointed Assistant Secretary of the Society), A. F. Barron (Superintendent of the South Kensington and the Chiswick Gardens), T. M. Shuttleworth (local Hon. Sec.), and W. H. Cowell (local Assistant Sec.).

Mr. Shuttleworth briefly introduced Mr. H. J. Elwes to the meeting, and that gentleman proceeded to explain the views of the Council on the subject of the Show to be held at Preston, stating that it would tax the resources and the energy of the Local Committee to the utmost. He was very much pleased, he said, with the beauty of the grounds at Faringdon Hall, and also with the spot selected for the Show, which would, weather permitting, be believed, be a complete success. Mr. Shuttleworth produced a lengthy list of patrons.

Mr. Elwes said a guarantee fund of £1000 had already been subscribed in London, and that more would be forthcoming if required. With the £500 already guaranteed by the Preston Nursery and Pleasure Garden Company, however, he thought a sufficient sum had been obtained. He urged upon the Committee the necessity of commencing at once to make a complete and active canvass for the purpose of providing the necessary funds for the prize money offered in the schedule and the preliminary expenses, and concluded his remarks by stating that the London Council would do all in their power to render the Show a perfect success. It was agreed that the advertising and placarding in the town and other parts of the county should be left entirely to the Local Committee, and that the advertising in the London horticultural papers should be attended to by the Council of the Society.

All details relating to the fixing of the tents were settled. One of them, it may be remarked, will be of such a size that it will cover about three-quarters of an acre. The erection of various buildings for the accommodation of the staff of clerks and other officials at the Show, the means of ingress and egress, the fixing of turnstiles, the prices to be charged for admission, and several other matters of a similar character were left to the Local Committee. After a very harmonious meeting the Committee adjourned until Monday evening next, when the system of canvassing for subscriptions will be discussed and settled. It was decided that Mr. Cowell should report to the Council in London from time to time what progress the Local Committee are making with the arrangements.

The real work of this great undertaking may therefore be said to have commenced in earnest, and we sincerely hope, indeed we do not doubt, that the most perfect success will attend the labours of the Committee. It is confidently hoped that some member of the Royal Family will be induced to honour the Show by opening it, and no effort will be spared to bring about so desirable and important an event.

GENISTA RACEMOSA.

WHEREVER sweet-scented flowers are appreciated in winter and spring this old *Genista* should be grown. It is one of the most useful greenhouse plants we possess. We have two plants of it planted out in the conservatory here. They are restricted in growth to about 4 feet in height and the same in width. We have cut large quantities of flowers from them throughout the winter, and now they are one mass of fragrant yellow flowers, many of the racemes being about a foot in length. The house in which they are growing in is over 100 feet in length, yet notwithstanding this their fragrance pervades the whole atmosphere of the house, and the odour is not sickly but delightful. The more bloom that is cut off the more there is produced. It is simply impossible to kill the plants by cutting off the flowers, and they grow so freely that no extra or particular care whatever is required to grow them to perfection.

They grow as freely in a pot as planted out, but when armfuls of flowers have to be cut from them they should be planted out. Loam, sand, and decayed manure mixed together grow them well, and they should have liberal supplies of water and liquid manure occasionally.—M. M.

CAPE HEATHS.—No. 4.

APRIL.

HAVING repotted the plants a suitable position or accommodation for them is of the next importance. Although many persons consider a separate house absolutely necessary for cultivating these plants, this is not borne out by our experience. It is true that where a sufficiently large collection is grown to

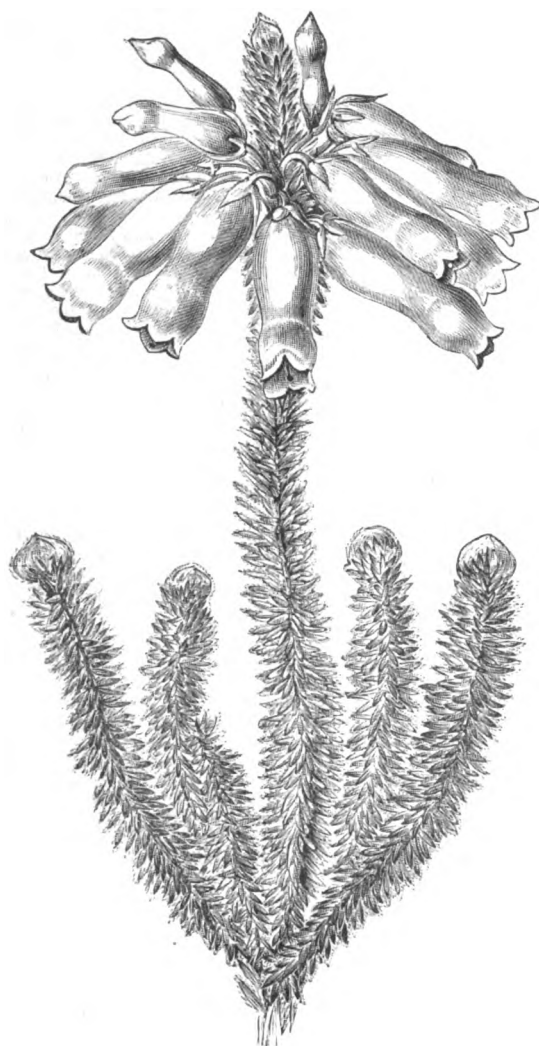


Fig. 44.—*Erica Massoni*.

fill a separate structure we should always prefer keeping the plants together, but the want of this convenience should not deter amateurs from growing some of these very beautiful plants, because Heaths thrive admirably when arranged with a miscellaneous collection of New Holland and other Cape plants.

Air and light in abundance are essential to the well-being of *Ericas*; but although enjoying a maximum of the former element they do not like sharp currents or cutting winds, more especially at this particular season of the year. We also advise the keeping of them a little closer immediately after repotting until growth commences and the roots begin to work into the new soil, after which more air may be gradually given until, later on in the season, they may be stood in the open altogether,

E. Archeriana.—A robust plant. Leaves arranged in sixes, linear, acute, furnished with hairs on the margins and deep green. Flowers produced in whorls, usually two whorls on a branch, one above the other, in shape tubular, hairy, and sticky; colour deep red.

E. cubica.—This is a dwarf-growing, much-branched little plant, possessing much beauty. Leaves usually in fours, linear, obtuse, and deep green. Flowers nearly terminal, bell-shaped, pendulous, spreading at the mouth, deep reddish purple in colour.

E. ignescens.—Leaves in fours, linear, obtuse, smooth and light green in colour. Flowers tubular, thickest at the base, with spreading mouth, produced singly or in pairs at the ends of the branches; colour reddish scarlet. A very desirable species.

E. obbata.—A grand species, which should be in every collection of greenhouse plants. Leaves in fours, reflexed, and fringed with hairs at the margins. Flowers very large, tubular, much swollen in the middle, arranged in whorls of from four to eight or more, pure waxy white, slightly streaked with red at the base.

E. hybrida.—An erect-growing softwooded species. Leaves arranged in fours, erect, linear, acute, and bright green. Flowers long and tubular, spreading at the mouth, forming long racemes of bloom of a reddish orange colour.

E. ventricosa fragrans.—This free-growing handsome plant, as its name implies, yields a grateful perfume. Leaves arranged in fours, linear, acute, hairy at the margins and shining green in colour. Flowers in dense terminal umbels, supported upon long coloured footstalks, flask-shaped, base much swollen; tube smooth, shining, bright flesh colour; segments of limb spreading, red at the base.

E. Massoni (fig. 44).—This is one of the very finest species and one of the most difficult to keep in good condition. Leaves arranged in fours, and clothed with long tomentose hairs. Flowers nearly terminal on the branches, and arranged in whorls upwards of an inch long, cylindrical, spreading, glutinous, and shining as if varnished; colour deep crimson tipped with yellowish green. The flowers are of long duration.

E. odorata (fig. 45).—A beautiful species, often known by the name of *odora rosea* on account of its grateful perfume. Leaves arranged in fours, linear, premorse at the ends, ciliated, and deep green. Flowers in umbels, campanulate, glutinous, and shining white; footstalks pink. A most desirable plant.

E. Sarileana major.—A dwarf, compact, and handsome kind. Leaves linear, flat above, channelled beneath, arranged in fours, and dark green. Flowers flask-shaped, produced singly upon long coloured peduncles, which spring from the axils of the leaves, and form dense racemes; colour shining reddish purple. It lasts a long time in full beauty.

E. vernic longiflora.—Leaves arranged in threes, obtuse, and somewhat triangular: flat above, channelled beneath, and dark green. Flowers large, flask-shaped, shining, and very sticky; colour rich golden orange, end of tube tipped with bright green.

E. tubæformis.—A fine growing hybrid, produced between *E. aristata major* and *McNabiana*. It is a free-growing plant, producing its bold flowers in great profusion. Leaves short and thick, dark green. Flowers in whorls at the ends of the branches, cylindrical tube, bright shining red, the broad expanded limb white, blotched with rose at the base.

E. perspicua nana.—A densely branched dwarf plant of great beauty; leaves arranged in fours, linear, acute, slightly hairy at the margins, and dark green; flowers produced in great profusion on all the ends of the small branches in terminal clusters, cylindrical, upwards of an inch in length; tube pinkish white, limb spreading, segments white.—W. H. G.

FRUIT PROSPECTS.

My fruit trees have been singularly lucky. I have a south wall flued through its whole length of 360 feet, of which 100 are covered with moveable frames of glass at an acute angle, but ventilated above and below. Another 150 feet are used for stove plants and Vines. The remainder is devoted to Peaches, Nectarines, and Apricots, all of which are very promising. The Apricots are already as big as Cherries. My garden wall is 15 feet high well coped with stone, and encloses an area twice the length of its breadth. On the side with a west aspect there are many Plums and some Apricots; on the exterior south wall one-half is of Apricots, the remainder Pears. The west wall is entirely in Pears on the outside, and

Pears and Plums in its interior. Now the important statement which remains is that my protection, which used to be by frigi domo or canvas, has been now supplied in all three circumstances by small tufts of Yew branches, and there has been no failure in any case. There are also other walls in an outer garden where Plum trees of the best sorts have been equally protected. My gardener thinks that perhaps the failure of fruit last year may have permitted greater vigour in the buds, but the autumn was unfavourable for ripening the wood.—G. H. VERNON, *Groce Hall, Retford.*

In Mid-Surrey no great damage has been done as yet to hardy outdoor fruit. The Apple blossom is still not out. The Plum trees do not seem touched. Some fears are entertained for the Pears, which are always more forward. Apricot and Peach bloom where unprotected is as usual lost. In respect of blossom there is very considerable promise, and if May can be weathered there is good hope of large crops. The heavy rain of April 11th followed by genial weather will do great things for all crops. March went out like a lion, but at any rate he did not threaten frosts in May.

"So many mists in March you see,
So many frosts in May will be."

—A. C.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

A NEW departure has been taken by the Royal Caledonian Horticultural Society in transferring their periodical exhibitions from the Music Hall to the Waverley Market—a change which has, in every sense of the word, proved a happy success. The Show of flowers and plants which opened on the 10th inst. was acknowledged to be the finest and most extensive ever witnessed in Scotland. Entering the Exhibition from Prince's Street by the west stair, the visitors were at once struck with the table containing the collection of fine-foliaged plants from the Lawson Nursery Company's stove and greenhouses. These comprised Palms, Dracenas, Ferns, Azaleas, Cycads, Pandanus, and Phormiums. The next table contained contributions by Messrs. Dicksons & Co. from their Pilrig nurseries. In the centre were two towering Tree Ferns, with gigantic specimens of Rhododendrons. The table also contained a numerous and excellent assortment of smaller Ferns and flowering plants. The centre table was furnished by Messrs. Downie & Laird with the most striking of their fine collection of Rhododendrons from the Royal Winter Gardens. Clinging round one of the hall columns was an Acacia laden with golden bloom, and on either flank were huge Australian Dracenas, Tree Ferns, and Rhododendrons. There were also hundreds of Hyacinths, Azaleas, Spireas, Palms, Dracenas, Narcissus, &c. The effect of the whole table was exceedingly rich. The adjoining bench contained the magnificent collection of Rhododendrons exhibited by Messrs. T. Methven & Sons, a collection which included plants from 8 feet high down to a few inches. On another table a few feet away the same firm staged a remarkable collection of Ferns. For the assortment they received the first prize. The firm also arranged a large and valuable collection of Coniferae. Messrs. Ireland & Thomson made up the greater portion of two tables with an unique collection. It included Caladiums of all the newest varieties, Orchids, embracing beautiful specimens of Dendrobiums and Phalenopsis, also Aralias, Palms, Dracenas, &c. For this table the firm received the first prize. Messrs. Drummond Brothers had a cross bench at the east end of the hall filled with ornamental-foliaged plants mixed with Orchids, Fuchsias, Azaleas, Ferns, and Hyacinths. South of this table was another cross bench, on which Mr. Robertson Munro displayed his first-prize collection of hardy spring flowers, including Primroses, Auriculas, Irises, Narcissus, &c.

In the south avenue Messrs. W. Gordon & Sons, Coltbridge, had a table one brilliant mass of flower. In the collection were some very beautiful Orchids, a handsome new seedling Primula with variegated foliage, Azaleas, Acacias, Dielytras, and flowering bulbs. The same firm likewise showed a blue-tinted seedling Cupressus Lawsoniana, which was granted a certificate. Mr. J. Anderson, Meadowbank, had a splendid show of trained Azaleas, but his speciality was his collection of Brazilian bulbs raised from seed by himself. There were at least over a score new varieties of Amaryllis. The Judges granted four first-class certificates to the choicest of the lot. A rarity in flowers was an entirely black Lily shown by Mr. Wm. Bertram, Carswell, but unfortunately its brightest days were past. Dr. Paterson, Bridge of Allan, had a small table to himself for the display of his unrivalled Orchids, which attracted general admiration.

Passing to the gardeners' classes, the most noteworthy collection was that from Millbank—Mr. J. Paterson's name appearing in the prize list more frequently than any other. It is also worthy of mention that all his awards were first with the ex-

ception of two. His collection of stove and greenhouse plants embraced splendid specimens of Anthurium Scherzerianum, a fine Tremandra ericoides (Tetratheca ericaefolia), a mass of lilac flowers, and several Ericas. His Cape Heaths, Azaleas, and Roses in pots were considered finer than had ever been seen in Scotland at this season of the year. Mr. H. Robinson, gardener, Woodlands, was perhaps the next most successful exhibitor. His collection included two fine Orchids (both Dendrobiums), Palms, and many greenhouse specimen plants admirably grown. Hyacinths were few but good. Specially commendable for size of spike and compactness of pips were Messrs. Downie & Laird's eighteen. Mr. A. Kerr's, a dozen and a half, were nearly as good; and Mr. J. Walker and Mr. W. Ellison were each first for six with fine spikes clear in colour. The cut Maréchal Niel Roses, which secured for



Fig. 45.—*Erica odorata*.

Mr. J. Jackson, Woors Abbey, the first prize, were magnificent. Mr. R. Summers' second-prize lot being more fully blown. Mr. J. Gordon, Niddrie, was first for the dozen cut Roses of other varieties, and among the more beautiful blooms were Baronne de Rothschild, Souvenir de Malmaison, and Bougère. Tulips were not so fine as we have seen nor so numerous, and the Primulas were past their best. Cinerarias and Pelargoniums were a finer display, and there was little to find fault with in the Narcissuses, Cyclamens, or Deutzias. Tree Mignonettes were well represented, and of Ferns there was a rich collection both exotic and hardy.

There was only one table of fruit, but it was, considering the season of the year, remarkable for its excellence. The Glamis Castle first-prize Grapes were large and rich-coloured, while the second-prize Grapes, Gros Colman, were large in berry and good in colour. Mr. Johnson's Pine Apple was of huge size, and his Strawberries excellent. Mr. J. Branton, Gilmerton, received a special award for a collection of fruit which embraced no fewer

than thirty varieties of Apples, three varieties of Pears, and two bunches of Grapes. The Apples were especially fine, when last year's season is remembered.

At noon the Magistrates and Town Council paid a visit to the Exhibition, and Treasurer Wilson in the unavoidable absence of the Lord Provost formally opened the Show. The Town Council, he said, had in view the accommodation of such exhibitions when they erected the Market. He thought it was patent to everybody that the Society had made a noble use of the building. Whether they looked to the variety of the plants, their number or disposition, the Show was simply unrivalled. It was the finest Show ever he saw, or that had been held in Edinburgh. The Town Council would meet the Royal Caledonian Horticultural Society liberally, and would make the rent merely nominal.—(Abridged from *The Scotsman*.)

OUR BORDER FLOWERS—CROWFOOTS.

I PASS by *Ranunculus asiaticus*, for it is not suitable for our borders. Of the Butter-flower, Buttercups, Kingcups, Gold-cups, and the "Cuckoo-buds of yellow hue" of Shakespeare we have many very beautiful varieties that inhabit our own land, making gay our meadows, hills, brooks, and hedgebanks from earliest spring to far into the autumn. Who has not seen our Goldilocks in many places during the months of April and May covering large spaces with a sheet of gold in the sunshine? Such we have in *Ranunculus auricomus*; then we have the Meadow Crowfoots and the Water Crowfoots, and who does not stay by the way to admire our floating white Crowfoot and its varieties? Then we have in the Great Spearwort, *Ranunculus lingua*, a very choice aquatic plant worthy of a place in all ornamental waters. Our Ivy-leaved Crowfoot, *Ranunculus hederaceus*, is a useful dwarf plant for moist places and rockery. In the earliest days of spring we have our Pilewort, *Ranunculus Ficaria*, offering to the Brimstone butterfly, one of our earliest visitants, a resting place. The White Crowfoot, *Ranunculus Ficaria alba*, is a telling spring bedder not half so much grown as it deserves, being useful for all places. Another of this batch, *Ficaria ranunculoides plena*, one of the choicest gems, ought to be massed in every spring garden and border.

Besides all the charmers of our own in this extensive family we have a grand importation from many other parts of the world. In *Ranunculus amplexicaulis* I see one of the most beautiful of all our border flowers. Its pretty foliage and pure white flowers are charming in the spring and early summer. It likes a moderately dry situation, but should not suffer for want of water in dry weather. Good loam and a little peat suit it well. It requires time and care to get it established. It is increased by division after flowering. Being of slender habit it requires care in cultivation.

The double varieties of our own *Ranunculuses* ought to find favour among cultivators of border flowers. Such plants as *Ranunculus gramineus flore-pleno*, *R. acris flore-pleno* (yellow Bachelor's Buttons), *R. bulbosus flore-pleno* (Bulbous Buttercups), only need to be seen to be appreciated. They are useful where cut flowers are in demand, and when well established they last many years, continuing long in bloom. Cutting away the exhausted flower stems the plants often give us a second bloom in autumn. They like a good, sound, moist loam.

Ranunculus alpestris, *montanus*, *alpinus*, and others are capital plants for the rockeries. One of the most interesting is *Ranunculus bullatus flore-pleno*. Why this plant is so little known I am not able to say. I look upon it as a very choice summer-flowering border plant. It requires time to get established, and then has a grand effect. Sandy loam suits it, and it is increased by division after flowering.

The Fair Maids of France, White Bachelor's Buttons (*Ranunculus aconitifolius*), must not be omitted. This ought to have a very prominent place in all borders, possessing as it does so many charming properties. It is good for cut flowers and for exhibition. It requires sandy loam, and well-decayed vegetable matter, and full exposure. It is increased by division after flowering.—*VERITAS*.

WORK AMONG TREES IN APRIL.

THE middle of April is perhaps the most favourable time for sowing Coniferous seeds. The practice of laying the cones upon the beds, to open and shed their seeds under the combined influence of heat and moisture, is a very slovenly one and uncertain in its results. By far the best way to extract the seeds is to place the cones upon a kiln (a hop-oast is well

adapted for this purpose), and if they are spread upon the hair about 7 or 8 inches thick, and a regular heat of not more than 110° Fahr. kept up for ten or eleven hours, they may then be removed to the thrashing floor and beaten out by the common flail.

Among the Spruce forests of the Hartz Mountains kilns are kept up by the Government, whose officers receive the cones from the men who gather them by contract. There it is estimated that one bushel of the cones will yield 1 lb. and one-fifteenth of the seed when divested of their wings.

As a guide to those sowing Coniferous seeds we may state that a sample of average quality produces under favourable circumstances of soil and climate about two-thirds of good germinating seeds: also that about a thousand seedling plants to the square yard is considered fair nursery space. The approximate number of seeds contained in 1 lb. of each of the different kinds is as follows:—Scotch Pine, 69,600; Larch, 63,900; Spruce, 61,400; Weymouth, 30,600; Austrian, 23,800; Silver Fir, 15,600; Pinaster, 11,150.

If not already planted, the seeds of the Beech, Alder, and Birch should immediately be got into the ground.

Larch seeds may be sprinkled with water for a few days before sowing. They should be lightly covered, having less than half an inch of soil over them, and they will require netting or closely watching.

Osiers for basket-making may be planted up to the first or second week in April. Choose land which abuts upon a stream, so that water may be admitted into the bottom of the open ditches or shut out at pleasure by means of a sluice. Take cuttings of 12 or 14 inches long from straight branches of two-years growth, and plant in rows of from 1½ foot to 3 feet apart, and 16 to 24 inches between the cuttings, according to the growth of the Osier. Insert the cutting about two-thirds of its length, and cut it down to the stub at the end of the first year. By the end of the third year they will attain their full strength and afterwards admit of yearly croppings. *Salix viminalis*, *S. rubra*, and *S. Forbyana* are considered good sorts for the basket-maker. The preparation of the ground for Osiers should comprise deep trenching, 24 to 30 inches, liberal manuring, and thorough cleaning.

Transplant large-sized Hollies for hedges, taking them up with a good ball. Uncover and water beds of Birch seed in dry weather; undercut roots of seedling Oak; and remove seedling Acacia, giving them ample space and liberal waterings. A. J. BURROWS (in *Journal of Forestry*).

THE AURICULA.

I CONFESS that as a beginner in the growth, though an old lover, of this truly beautiful flower I have felt some, and I think I may say no little, fear as regards success after reading the now-and-then articles from those deep in the mystery. One writer says that it is a great pity, almost a sin, to let a tyro have "good sorts," for he is almost sure to lose them, and therefore he names a few of what he terms hardy as suitable and *good enough for him*; in other words, he applies the old adage, "It is not well to cast pearls before swine." Another is horrified at heat having been applied to the culture. Then one writes, in a dolorous strain, that there is ice on the roof of his Auricula house, but he "dare not" take them into one fronting the south, and so on. After reading such remarks as those I say one feels a little tremulous as to one's success; but for my own part, the fact that there are difficulties to contend with and surmount is to me one reason why I should *try*, as we all, I think, ought to be able to say of each day that there is "something attempted, something *done*." So the true florist will not be daunted because a great floral achievement requires thought, attention, and patience.

But then comes the question, Is that superb flower the fancy Auricula after all so very difficult to grow? We know that all that is worth doing is worth doing well. It is so in everyday life. In our work, our hobbies, our pleasures, or our rest all must be thorough, or neither is satisfactory. If a man intends to grow anything let him have the *best* at *starting*, or he will only have the notion, if he succeeds, he is at best only second to others. Long, long years has the Auricula been my favourite flower. When a little boy I used to peep through the fence of my father's garden and look into frames full of well-grown plants belonging to our next neighbour. Since then I have treasured their beauty in my "heart of hearts," and now I am growing some for myself. True, I have only begun a few months, and my first plant was George Lightbody. I think I

can hear the old fancier say, "What a pity! why not try with coarser sorts?" Not at all. Have those that want most care, and then they are sure to be well looked after. George Lightbody came to me by post one morning, a kind present from the Rev. Mr. Horner. I was at one time doubtful whether I should save this small plant, but it is alive and doing well. Thanks, many thanks, to Mr. Horner, who, though almost a stranger to me, at once put me into the position of a grower as well as a lover of the (in my opinion) most artistic flower grown. I think there is more art shown in the fancy Auricula than any florist flower that I know of. It is a triumph in its way; it is indeed "a thing of beauty." I have only about twenty plants; most of them are in bloom, and "often, oh! how often" during the day I run down to the house they are in to study their truly marvellous colouring, their wonderfully dusted foliage, their beautiful form, and high condition. What I *liked* years and years ago I *love* now.

All the plants I have had are trim and healthy, strong and thriving. Is there really any great mystery, then, in their growth beyond proper attention? I think not. Let others like myself begin, *many others*. Let this long-neglected flower be once more recognised amongst florist flowers to be what it really is—the most beautiful of all. When one man succeeds surely another can. The race is not always to the swift. The National Auricula Society's Show will be held at the Crystal Palace on the 25th of this month; let those who love gardening go, and if there is but only a show like last year they will be rewarded by a sight worth seeing, and seen never to be forgotten. There they can take notes as to the sorts they would like to begin with, and once having begun will go on, each fresh season bringing them fresh delights and pleasures—*home* pleasures, and there is no place like home. I think it was Lord Brougham who said "Happy is the man that has a hobby;" I say, "Happy is he who grows Auriculas well."—HARRISON WEIR.

NOTES ON VILLA AND SUBURBAN GARDENING.

In the kitchen-garden department work will necessarily have to be delayed for a time on heavy ground in those low-lying districts that were submerged by the heavy rains of the 10th and 11th inst. When the soil is in good working order make further sowings of Peas and Broad Beans for succession. Champion of England and Veitch's Perfection Peas are not yet surpassed by any newer varieties both for productiveness and flavour. The former requires sticks of 5 to 6 feet in height, the latter only requiring them $3\frac{1}{2}$ feet. Draw the soil up on each side of those Peas already above the ground and place sticks to them. We have known sparrows eat the Peas until they are very far advanced in growth, but the birds rarely do so much damage after sticks have been placed to the rows.

Cauliflowers under handlights should be occasionally watered with liquid manure. Four or five of the strongest plants to be left under each handlight, the others being removed and planted out to succeed the protected crop. The glass covers are placed on every night for some time longer yet to forward the earliest crop as much as possible, exposing the plants by day and to all warm showers. As the plants advance in growth the handlights are raised by placing bricks under them. Sow in the open border Walcheren Cauliflower for succession, also Broccoli, Cabbages, Savoy, Brussels Sprouts, Borecole, &c. Snow's Winter White, Adams's Early White, Leamington, Wilcove, and Suttons' Late Queen are a few good Broccolis for succession. Choose a warm open border for the seed beds, and protect from birds by covering the beds with old fish nets until the seeds have vegetated. The nets should be kept off the soil by a few forked sticks or other supports inserted in the beds.

The main crop of Potatoes must be planted now without further delay. In small gardens we advise only the planting of early sorts, as late varieties are more liable to be affected by the murrain. Myatt's Ashleaf Kidney is an excellent first-crop Potato; Early Oxford and Paterson's Victoria are first-rate later table Potatoes. Of the American varieties worthy of a place in villa gardens are Early Rose and Snowflake. The former is very early, and on light soils we have had it very good in quality; it is also useful for filling up gaps. Snowflake we grew largely last year, and were so well satisfied with it that we intend growing still larger quantities this season. We prefer planting with a spade, and if the ground has not been previously manured some manure is placed in the trenches as the digging proceeds, the Potato sets placed about a foot apart in the rows and from 20 inches to 2 feet between the rows; plant strong sets.

Beet.—The Egyptian Turnip-rooted variety is very useful on account of its earliness. If sown at once it will furnish Beet for salads long before the main crop is ready for pulling. Dell's Crimson and Pine Apple Short-top are good sorts for main crop and

winter supply. They may be sown towards the end of the present month. A main sowing of Carrots may be made at the same time. Altrincham and Long Surrey are very good sorts, but on some soils they are much affected with the maggot. When such is the case frequent sowings of Early Shorthorn and James's Intermediate to pull while young is the best plan for securing a supply. Sow in drills a foot apart, mixing the seed with sand, and well rubbing it with the hand to separate it before sowing.

Onions that were sown as previously advised are now to be plainly seen in the drills; if any blanks occur make a further sowing without delay. White Spanish is the best variety for sowing now. Salads of all kinds may be sown as necessity requires, and a sowing of White Dutch or Early Six-weeks Turnip should be made for early supply. If the weather should be moist and warm very few plants run to seed.

Frames.—The wintery weather which has lately prevailed has rendered additional care necessary in the management of hotbeds by turning the linings and adding sufficient fresh stable manure for supplying the requisite heat. Regulate the growth of Cucumbers, and sow seeds of Melons for fruiting during the summer in the frames which the bedding plants now occupy. Sow seed of Vegetable Marrow and Tomatoes. Short-jointed Long White is the best Marrow for general purposes, and Hathaway's Excelsior the best Tomato. Ascertain at once if there is sufficient of small bedding plants struck for the summer; if not, there is even time yet to increase Alternantheras, Lobelias, Verbenas, Mesembryanthemums, and such-like plants that are required in large quantities. Place Geraniums, Calceolarias, and the more hardy bedding plants in cold frames or under extemporised protection preparatory to planting them out.

Conservatories should now be very gay with Rhododendrons, Azaleas, Deutzias, Richardias, Cinerarias, Spiræas, Roses, &c. All plants that have been forced should be returned to a warm house in order to make their new growths before being planted out into the reserve garden during the summer. Hyacinths and Tulips are now fast going out of bloom, and may be planted out in the open borders to ripen. Continue tying out Roses in pots in order to have even and well-balanced heads. Smoke these and herbaceous Calceolarias if aphids should appear, and prevent mildew on Roses by dusting the foliage with sulphur. Many young shoots of Roses out of doors have been killed by the severity of the weather. Clematis Jackmanii also has its young growths killed; this will probably break further back, and so will the Roses that have suffered. Those who did not prune close will do well now to cut back the shoots to dormant buds.

WORK FOR THE WEEK.

KITCHEN GARDEN.

PERPETUAL or Spinach Beet is a useful substitute for Spinach. It may be sown now in rows 15 inches apart, and will give a supply of leaves all through the summer; but it is not in request when round Spinach is to be had, of which make sowings between the rows of Peas. Sow Salsafy, Scorzonera, and Chicory in rich light soil and open situations. In warm situations the sowing of Chicory should be deferred until early in May, as when sown early the plants are liable to run to seed. Similar remarks apply to Beet. Pine Apple, Short-top, and Nutting's Selected are fine in colour and flavour. Complete at once the planting of Potatoes. Cauliflower plants still in frames plant out; they will afford a succession to those previously planted, and if some are planted on a north border a succession of heads will be more likely to be secured.

HARDY FRUIT GARDEN.

Fig trees are not so much grown against walls as their delicious fruit merit, and in many places the trees make too long and gross growth to bear fruit satisfactorily. This frequently arises from too rich soil and a deficiency of calcareous matter. The former defect may be rectified by root-pruning, which no tree endures better than the Fig, and the other by an addition to the soil of chalk. Root-pruning, however, is only of temporary value in restricting the growth when the trees are planted in very rich soil. An amateur who grows Figs and Peaches in an adverse climate remarkably well adopts the following practice. The bottom of the border is concreted from the wall outwards to the extent of 4 feet, the border being 30 inches deep. At 8 feet from the wall a single brick wall is built without mortar, and this gives a somewhat confined space for the roots of a yard width and of the length of the wall; 6 inches of chalk or rubble is placed at the bottom for drainage, and the border is filled with turfy loam rather strong mixed with a fourth of chalk, the whole being made quite firm. The trees make short-jointed wood and commence bearing early. When the roots have passed the open brickwork into the rich soil of the border outside, which is indicated by the grosser growths, a trench is taken out outside the brickwork but close to it down to the concrete, every root being cut off. An excellent opportunity is then afforded of trenching the border, and the trees are fruitful and scarcely suffer from frost. This cutting-off the roots and trenching the border is done about every third year, and excellent vegetables are produced as well as good crops

of fruit. A good watering is given to the trees when the fruit fairly commences swelling, and is repeated as may be required during the summer. The present is a good time to plant Fig trees; if they are turned out of pots the roots should be disentangled and spread out. Brown Turkey and White Marseilles are good bearers, having large richly flavoured fruit. Brunswick is excellent, but requires space; Negro Largo is the best of recent introductions, a great bearer, and delicious.

FLOWER GARDEN.

Pretty flowers and fresh foliage are now bursting through their winter bonds. At no season of the year does the hardy perennial, bulb, and Alpine garden yield so much interest as at present. The planting of all hardy perennials may yet be done, choosing dull weather for the operation. Propagation by division may still be practised, watering, and if needed shading the plants until they are established. Any half-hardy herbaceous plants wintered under glass or otherwise protected should now be planted out. The hardy fernery has peculiar attractions during the early summer months; the young fronds of the Ferns vie with each other in their tints of green and in displaying their elegant forms. No garden of any pretensions is complete without Ferns and Alpine plants, which cannot be cultivated so as to look well except in a suitable position by themselves. The old fronds of Ferns should be cleared away if not already done, and a top-dressing of peat and loam or leaf soil should be applied to the roots. Some hardy ferneries lack plants with bold foliage. *Cytisium falcatum* and *Woodwardia radicans* are very striking, also *Onoclea sensibilis*, *Struthiopteris germanica*, &c. *Daphne Cneorum* should not be absent from rockwork, its fragrance is always appreciated. The margins of walks and open spots in shrubberies should be occupied with Violets, Primroses, Anemones, blue, white, and pink Harebells, Orchises, with bulbs of various kinds, particularly Narcissi; Forget-me-nots, and other plants delighting in shade. Push forward the planting of evergreen shrubs, so as to have it completed before much growth is made. The holes to receive the plants should be prepared before lifting, so that the shrubs are moved with as little exposure of their roots as possible to the drying influence of the atmosphere. Water copiously if the ball becomes dried or the soil employed in filling up be dry. Stake the shrubs securely, and place a mulch of half-decayed litter or partially decayed leaf soil over their roots to prevent evaporation.

FRUIT HOUSES.

Vines.—In the earliest house red spider (especially if hard forcing has been practised), may be expected. Upon its first appearance paint the return hot-water pipes with sulphur mixed with milk so as to form a thick paint. Give the border a thorough watering, mulching afterwards. This refers to the inside borders. The water should be applied early in the day, so that surplus moisture may pass off before closing time. Early Grapes do not always colour well, the defect arising often from hard forcing, and only avoidable by a constant supply of dry warm air and a moderately low night temperature. Where Grapes are fully ripe a reduction in temperature is advisable, yet a moderate moisture should be maintained for the benefit of the foliage: the moisture will not do the Grapes any harm provided the air is changed by free ventilation. In succession houses attend to stopping and tying of the shoots, and thinning the bunches and berries, for so long as surplus berries remain they are taking nutriment from the Vine which would otherwise be appropriated by the intended crop. Vines in late houses will now be making good progress. Close early in the afternoon with sun heat, with a view to the employment of as little fire heat as possible. See that the borders have plenty of water. If failure is to be avoided the supplies of water must not be scanty; indeed red spider and shanking are usually the results of drought at the roots of the Vines.

Planting Vines.—This is the very best time for planting young canes. The borders, we presume, have been made some time, if not they may yet be formed. We prefer the borders partly within and partly outside, planting the Vines inside the house where practicable. Except for very early forcing we are no advocates of confining the roots to inside borders. The border, whether inside or outside or both, should be concreted at the bottom, unless it has a substratum of gravel or other porous substance; rubble 1 foot thick should be placed on the concrete, and proper drains and outlets must be provided. Three feet depth of soil is ample. Turf 3 inches thick taken off loam light rather than heavy, broken-up tolerably small, and mixed with a tenth part of old mortar rubbish, a twentieth of half-inch bones, and an admixture of charcoal in the same proportion as the lime rubbish, form a suitable compost; but well-drained and fertile garden soil will grow serviceable Grapes. The Vines, it is presumed, were cut back in early winter and have been kept in a cool house, the eyes now having grown 2 or 3 inches long. Turn them out of the pots, remove every particle of soil, carefully preserving the fibres. Spread the roots out straight and flat, the soil of the border having been brought to the required height, covering the roots to a depth of 4 to 6 inches, working the soil well among them with the hand, and giving a good watering with water at 90°, mulching with a little short litter. If the canes have not been shortened do not shorten them now, but remove

the buds from the upper portion down to whence fresh growth is desired to issue, and shorten the canes at the winter pruning. Six feet width of border will be sufficient to commence with. Sprinkle the Vines and house twice a day, but avoid forcing. A steady temperature is necessary so as to afford time for the formation of new roots; afterwards, and when they have started freely, every encouragement to growth should be given. Vines planted last year will be breaking naturally, and should be assisted by gentle fire heat in cold weather. Disbud, leaving the best shoots about 18 inches apart on both sides of the canes. Crop very lightly, one or two bunches should be a maximum. Any extra Vines planted to fruit early and afterwards be cut out, may carry a bunch on each shoot.

Peaches and Nectarines.—The weather lately has been very unfavourable for the forcing of these fruits, indeed all early forcing, rendering great care necessary in the admission of air, as sudden changes of temperature are inimical to the health of the trees and steady progressive growth of the fruit. It is better to allow the temperature to rise a few degrees higher from sun heat than to admit a sweeping current of air to pass through the house; also be very sparing of fire heat at night, for a high temperature in cold dull weather, and especially at night, is very injurious. Keep the shoots well tied down as they advance, and aim at having them thin rather than crowded, as upon the exposure of the foliage to light and air depends the development of the buds for future bearing. Extensions should be trained-in their full length, and if any of the side shoots laid-in for future bearing exceed a foot in length pinch out their points at that, stopping any laterals at the first joint. We find the most critical stage in Peach forcing is just preparatory to stoning, when the fruit, if it receive a check or the wood is not thoroughly ripened, will be cast. More fruit is being cast in the stoning process this year than we have previously experienced; this is undoubtedly due to the sunless season of last year, for though artificial heat may bring to maturity a crop in a dull season it is but a poor substitute for natural heat and light. Disbudding and thinning must be proceeded with, but do it gradually. Moisture will be had sufficiently by damping twice a day in dull weather, or syringing if the days are bright; let this, however, be done early, so as to have the foliage dry before nightfall.

Cucumbers.—Let the plants be looked over twice a week for the removal of superfluous fruit, thinning the shoots, stopping, tying, &c. Of moisture there must be no deficiency either at the roots or in the atmosphere, but both must be regulated by external influences. Syringe freely in bright weather, and give liquid manure copiously to plants in full bearing. A slight shade may be necessary when the sun is bright and powerful, especially after a continuance of dull weather. If straight fruit be wanted employ glass tubes, which are more requisite under frame than house culture. In pits and frames more moisture will be required, and the foliage may be damped on fine afternoons at closing time through a fine-rosed watering pot. Attend to earthing as required, maintaining a good bottom heat by linings of hot sweetened dung, covering the glass with mats at night. Another frame or pit should be planted to produce fruit after the first frame plants are becoming exhausted. Sow seed for a third frame if one be wanted, also seed of the Stockwood Ridge Cucumber kinds and the short prickly variety for Gherkins.

Melons.—Supports will be required for the fruit. Half-inch boards of about 7 inches square, secured to the trellis with copper wire, are suitable. They should slightly slope to prevent water lodging upon them, and be so fixed as to relieve the plants of the weight of the fruit. To prevent red spider paint the return pipes with sulphur, maintaining a good atmospheric moisture by sprinkling the house and plants twice a day except those in flower, which should have a drier atmosphere. When the fruit is set attend to the applying of atmospheric moisture, and keep the roots well supplied with water. Make a practice of going over the plants frequently for stopping, thinning, and tying the shoots. Apply fresh soil to advancing crops, giving timely attention to the linings of frames and the covering of them at nights. To secure the most benefit from sun heat admit a little air at 75°, increase it at 85°, not letting the heat exceed 90°, closing at 85°, or when the heat afterwards will not increase beyond 90°, though 95° will not do harm if there be a good moisture within the house or frame.

PLANT HOUSES.

Stove.—To keep up a succession of Gardenias young plants should be grown in comparatively small pots (7 or 8-inch pots are quite large enough), so as to introduce a few plants at a time into brisk moist heat to cause the flower buds to expand, which they do more speedily when bottom heat is afforded. Young plants produce very much finer flowers than old plants, but they must be induced to make free growth and be kept free from scale and mealy bug. Young plants of *Eucharis amazonica* may, when the plants are rootbound, be shifted into larger pots. Established plants must be very liberally supplied with water and liquid manure. The stronger this plant grows the finer and more numerous are its flowers. *Clerodendron fragrans* is as rich in colour as it is grateful in perfume, and does not require so much

room as the larger-leaved *C. fallax* and *C. Kamperferi*. A little leaf, soil added to sandy loam, grows it well, affording a light position and slight shade only, with good moisture and warmth. Amaryllises or Hippeastrums making growth keep in a light position, so as to have the foliage stout, as upon that and keeping it clean the coming season's flowering depends. Liquid manure not too strong should be given to the plants occasionally.

Palms.—These stately plants are making vigorous growth; keep them well supplied with water. The pots should be placed upon a hard bottom, as when they have the chance the plants root very freely from the pots, and this very often causes the foliage to have a sickly hue when the plants are removed. Palms of small size are the most useful of all for decorative purposes, especially *Cocos Weddelliana*, *Thrinax argentea*, *T. elegans*, *Euterpe edulis*, *Kentia gracilis*, *Hyophras indica*, *Chamaedorea Brazei*, *Augusti*, *Demonorops fissus*, *Latania rubra*, *Geonoma gracilis*, *Areca Verschaffeltii*, and *Chamaedorea graminifolia*.

Hoya bella and *H. Paxtoni* are coming into flower; keep the plants in a rather dry atmosphere, their flowers being then more enduring. Gloxinias advancing for flowering should be kept near the glass, and if removed to an intermediate house the flowers will continue longer than when placed in a close warm stove.

If provision has not been made for a supply of plants for dinner table and small decorative foliage plants generally, no time should be lost in proceeding with their propagation. Some of the most useful are *Crotons* Wiesmanni, majesticus, spirale, angustifolius, pictus, and undulatus. Shoots of 8 to 10 inches long should be chosen, and struck in a close moist and warm house, and should afterwards be grown on briskly, when useful plants will be had in a short time. *Aralias* Veitchi, reticulata, elegantissima, and leptophylla, are valuable table plants, and should be grown the same as *Crotons*. *Dracenas* of the narrow-leaved section, such as *angusta*, *albicans*, *Guilfoylei*, and others of the *D. terminalis* type, should be propagated forthwith if plants are to be had for autumn and winter decoration. Their tops are best striking readily in brisk moist heat. In striking these and similar plants it is desirable that they be kept close and warm, so that the lower leaves may be preserved. *Pandanus Veitchi* and *P. utilis*, with the *Palms* above noticed, having persistent foliage, are also very valuable for table decoration.

Orchids.—*Angulos* and *Lycastes* should now be repotted, using equal parts of fibrous peat and sphagnum with some lumps of charcoal interspersed. Good drainage is needful, and free watering at the roots. *Dendrobiums* require more water, giving it, however, with care, some having delicate roots. Avoid overpotting. Strong growers do best in pots, such as *D. nobile*, *D. Farmeri*, and *D. densiflorum*; but *D. Wardianum*, *D. Devonianum*, *B. Cambridgeanum*, *D. Parishii*, &c., do best in baskets suspended from the roof. *Oeogyne cristata* syringe frequently when starting into growth, and when fresh roots are made water is required copiously. *Cattleyas* and *Laelias* in a growing state require to be kept moist, whilst those having the growth completed should be kept in the coolest part of the house and have less moisture. *Miltonias* to have plenty of water, also *Cypripediums*. If the last-named plants are neglected in this respect the foliage and flowers suffer. Syringe the plants early in the morning and again in the afternoon, shading so as to subdue the fierce rays of the sun; ventilation is required in bright weather from about 9 A.M. to 4 P.M. In syringing avoid damping the flowers, or they become spotted and unsightly. *Odontogloss* when the flowers open should be removed to a dry house or they will spot, but keep the plants moist at the roots.

TRADE CATALOGUE RECEIVED.

J. B. A. Delenil, au haut de la Rue Paradis, Marseilles.—*Catalogue of Novelties and General Decorative Plants.*

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense. Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

BOOKS (F. Watson).—"Flower Gardening for the Many," published at this office, will suit you. It can be had by post for 4d. in postage stamps. (K. K.).—The best book for you is the "Cottage Gardeners' Dictionary." For the nursery department we do not know of any work, except it be Brown's "Forester," published by Messrs. Blackwood, that will give you the required information.

ADDRESSES (Belgian Here).—You must refer to Kelly's Directories and the lists of Fellows of the Royal Horticultural and Botanic Societies.

AURICULAS (A. Loner of Auriculas).—The varieties are as good as are usually obtained from a packet of seed, but none of them possess merit

according to the florist's standard. The best flower is the one having a deep yellow centre and shaded maroon petals. We are unable to distinguish it, as the numbers had slipped from several of the pips. Some of the flowers with pure white centres are also attractive for border decoration; those with washy undecided colours we estimate as worthless.

FELLOWSHIP OF ROYAL HORTICULTURAL SOCIETY (An Inquirer).—Write to the Secretary, Royal Horticultural Society, South Kensington, and state your wish.

EUCALYPTUS GLOBULUS—"E.P." wishes to be informed where he can obtain plants of this tree.

CALCEOLARIA CULTURE (A Beginner).—You will find full directions in our "Garden Manual," price 1s. 6d.

VALUING CROPS (W. G. A. Market Gardener).—If your landlords have agreed to take your crops at a valuation it will be right for the Strawberry plantations to be included in the valuation.

CLERODENDRON FALCATE.—It can be purchased from the chief London nurserymen.

GARDENIA BUDS DROPPING (S. S. L.).—With your explicit letter you have enclosed some fallen buds. Had you sent us a spray also from which the buds had fallen it would have aided us still more in determining the cause of the disappointment you are experiencing. We suspect that the original cause of the evil is immatured wood; secondary causes—first, temporary dryness at the roots at some time or other (it may have occurred two months back); and second, a rather too low temperature. Under these conditions fungigating, if at all strong, would be prejudicial. Raise the temperature 5°. Shade only during very bright sun, and then slightly. Top-dress your plant with soot, making the surface of the soil quite black, and water copiously with tepid water. Syringe the plant freely at least twice a day, and maintain a moist genial atmosphere. Provided the drainage is efficient and the roots active *Gardenias* can scarcely have too much water. Suitable temperatures are 65° at night, 70° by day with fine heat, 80° to 85° with sun, closing the house with much moisture at 85°.

ROYAL FERN (Sussex).—The finest specimens of the Royal Fern, *Osmunda regalis*, grow in places not shaded by trees in the New Forest. This Fern will, however, grow well in the shade, and you may plant in positions most convenient for your own purpose.

WOOD OF THE LIRIODENDRON TULIPIFERA (W. H.).—The wood of this tree is smooth and fine-grained, very easily wrought, and not liable to split. It is used for various kinds of carving and ornamental work, and for articles of household furniture. Michaux says that the joinery and inside work of the houses in the western States of America are most frequently of this material. It has also been used for canoes, hence the Swedes in North America call it the Canoe Tree. It is not serviceable when sawn into boards on account of its expanding and contracting more than most other wood under the influence of the weather.

SIZE OF ROSE BOX (Jas. Brown).—Your box for staging six Roses should be 1 foot 3 inches long, by 1 foot 6 inches wide, 5 inches high in front, and 7 inches behind. In exhibiting three blooms we should insert each one in a sheet-tube or bottle of water, grouping them in the form of a triangle, concealing the tubes in a mound of moss, among which the flowers should nestle. Do not crowd them, but let the foliage have ample space to display its full beauty. The width and height of small boxes require to be the same as for large boxes, in order to secure uniformity in the show.

MILDEW ON ROSES (Edward Wilson).—Dust the foliage with sulphur, which should be left on it for a few days, and then washed off by syringing with clean water. Apply the sulphur again with promptitude upon the recurrence of the slightest symptoms of mildew; further, pay strict attention to regularity in watering, using liquid manure once a week, and keep the house well ventilated.

PRUNING DRUTZIA GRACILIS (Ten-year Subscriber).—Cut down the old growth as directed, leaving any strong new growth which may have started from the base of the shoots before the pruning. The object of pruning is to induce the formation of stout young shoots springing from or near the crowns for the production of next season's blossom. Do not retain the old straggling branches unless you wish to produce large specimens, then thin out the old growth and shorten the remainder to a foot in length.

STRIKING CUTTINGS OF TUBEROUS-ROOTED BEGONIAS (An Old Subscriber).—Fill a third of the cutting pot with pieces of broken pots, over which place soil consisting of equal parts of leaf, soil and silver sand, with a layer of pure sand on the surface, made level and pressed gently down about an inch below the rim of the pot. In this insert stout cuttings 2 or 3 inches in length, made in the usual fashion by trimming off one or two of the lower leaves and cutting off the bottom close under a joint. Press the sand about the cuttings, water well, and place the pot in a brisk lively temperature of 70° or 80°. Shade from the sun, and in a few days the cuttings will emit roots, and should be sufficiently forward for potting in a fortnight. Such cuttings grow so readily and freely that we are somewhat at a loss to account for your failure. It might arise from the insertion of cuttings taken from plants growing in a high temperature in cold golden soil, by exposure to cold cutting air in transit to a hotbed, by placing them in too low a temperature, or by taking the cuttings from plants growing in a much lower temperature—say 15° or 20°—than that which we advise for the cuttings. The *Aphelandra* you refer to we think can be obtained from Messrs. Veitch & Sons, Chelsea, who can probably also supply seed.

FUCHSIA SERBATIFOLIA CULTURE (A Subscriber).—Now is the time to make cuttings of this and other winter-flowering *Fuchsias*. They emit roots freely in a brisk heat, are then potted in 4-inch pots and kept in heat till well established in the soil, when they are removed to an unheated pit or garden frame for the summer, and repotted twice or thrice into larger pots as they make progress; 7 or 8-inch pots are quite large enough for the last pottings. You will then have them crowded with roots, and by giving very little water throughout September—just enough to keep the foliage from suffering—you will have plenty of flower buds springing forth in October, and the plants will continue in bloom till after Christmas. Old plants are often cut in now and turned out of the pots into open well-drained sunny borders in June, left pretty much to themselves during summer taken up and repotted in October, and brought into bloom with or soon after the young plants. These hints will probably show you why you have failed with your plants.

WINTER-FLOWERING GREENHOUSE PLANTS (Idem).—Your greenhouse may be gay throughout winter with a collection of Zonal *Geraniums* raised from cuttings inserted now. You may also have Chinese Primroses and

'Cinerarias from seed sown at once, Mignonette sown in succession from May till the end of August, and for variety Epacris, such Cape Heaths as *hyemalis* and *gracilis*; Cytisuses, Coronilla glauca, Cyclamens, Perpetual Carnations, and Solanums capicastrum, Weatherill's hybrids, and Prince of Wales. Cyclamens and Solanums sow now, and by superior culture the plants will be ornamental next winter. The other plants are not expensive and can be had from any nurseryman. Continue the syringing of your Camellias till the growth and foliage are fully perfected. Pot your Eucharis immediately, encourage free strong growth, then keep somewhat dry to throw it into bloom, and by alternate feeding and resting you may obtain two or three crops of bloom throughout the year.

SOIL FOR MELONS AND CUCUMBERS IN BOXES (*Idem*).—Two parts turfy loam, one part well-decayed dung. Cucumbers and Melons may be grown in the same house, but the process is difficult and undesirable.

SOWING MELON SEED (*J. Owen*).—To ripen fruit in a frame during August sow the seed towards the end of April; but much depends on the variety grown, heat provided, and mode of culture. We cannot give the address of our correspondent.

RHUBARB FOR FORCING (*W. P.*).—For early forcing plant the old Early Scarlet and Mitchell's Early Albert. To prevent Peas mildewing in summer mulch over the roots and water copiously.

FRUIT, &c., GROWING IN WINTER (*H. S. F.*).—The work you quote from is unworthy of notice. The directions are delusive.

MUSHROOM CHARACTERISTICS (*A Young Gardener*).—It is the *Agaricus campestris*; there are some slight variations. The true Mushroom has flesh-coloured gills, which ultimately become brown.

GLAZING WITHOUT PUTTY (*B. S.*).—It is not a patented practice. Any one may adopt it.

QUERIES UNANSWERED (*An Old Subscriber*).—We are not aware of any.

NAMES OF PLANTS (*S. M. W.*).—Cotoneaster Simonsi. (*G. H. B.*).—*Schomburgkia crispata*.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

MANAGEMENT OF A BUTTER-MAKING DAIRY.

(Continued.)

It is a point of some consequence how far the arable portion of the farm can be made to supplement the produce of the pasture and park land. Besides Italian rye grass to which we have referred, trifolium claims our notice for early produce; but even that is scarcely ever fit to cut so soon as rye, therefore the importance of rye must not be overlooked, seeing that a good crop can be obtained and used for cow-feeding. Where the land is clean rye will not only yield a crop of six or seven tons of green fodder, but it will improve the prospect of root-cultivation, because either mangold or swedes will take better after a rye crop is taken off than after an old fallow. Rye, too, does not affect the flavour of butter injuriously. Trifolium must, however, come next not only in feeding value but in weight of produce. It is, however, more valuable on account of its weight of produce than its feeding properties for dairy cows; still it is a good supplement to the pasture grass, which should always be fed close, and we consider that the mistake commonly made by dairy farmers is that of depending upon the growth on the pastures only. We consider also that it should be made a leading point in feeding the cows in the summer and autumn months to have prepared a good succession of green fodder crops, so that at no time should they be dependant upon the pastures entirely. To make the succession complete we should be prepared with—first, Italian rye grass, then rye, next trifolium, then vetches and oats mixed, also vetches and tall rape mixed. The last-named is especially advantageous; in fact tall rape, or coleseed as it is called in the north, may be sown by itself and cut-up for feeding either by itself or in conjunction with grasses the produce of the arable land, except broad clover, which we reject as it often proves injurious, causing the cattle to be "hoven," or "blown." The time of year will then have arrived after using the above-named food when the pasture will be bare or stale. We must not, however, pass to the consideration of the question of root-feeding without an observation relating to the use of cake in addition to the grass and green fodder during summer, for we can confidently assert that it will pay to give cake, say 8 or 4 lbs. per day to each cow, either linseed cake, rape cake, or decorticated cotton cake. The green rape cake sold for feeding purposes is the best of all, because the analysis shows that the oil of rape is the counterpart of the oil found in butter. Cotton cake is the next best; and linseed cake is, perhaps, the worst adapted for the dairy cow,

because the oil from it is different from that of the other cakes, being of a more drying nature. An experienced friend of ours, however, tells us that he has succeeded well with palm-nut cake in a butter dairy.

Before leaving the question of pasture feeding we would remark that one of the advantages of supplementary food is, that the cattle can be made to feed the pastures down bare and keep them bare during the whole summer, particularly when a fresh change of ground can be found for the cows. This close feeding and not allowing the grass to run-up to seed heads is of great importance in order to prevent the baneful effect of "ergot" (figs. 46 and 47), in moist seasons of a low temperature like last summer,



Fig. 46.—Ergot on Timothy Grass (*Phleum pratense*).

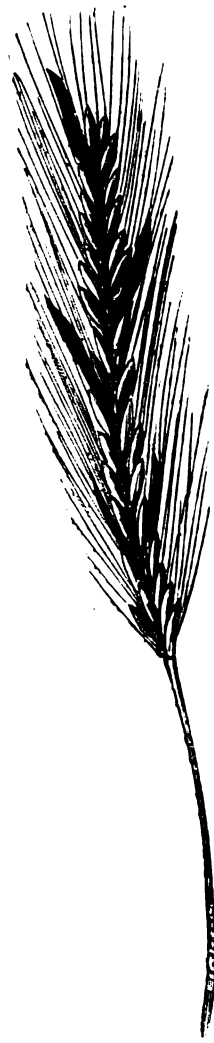


Fig. 47.—Ergot on Barley Grass (*Hordeum murinum*).

which is neither more nor less than diseased seeds caused by an attack of fungus, which when eaten by the cows is liable to produce abortion, and in a most insidious way affects large numbers of animals, oftentimes without the cause being discovered. Abortion thus produced in one cow is, if not discovered in good time (and which we believe is seldom the case), will spread through a herd and cause heavy losses. There is a peculiar sympathetic effect amongst the cows in cases of abortion which renders it necessary on the first discovery of the symptoms to remove the affected animal entirely out of the way of the rest of the herd. The abortion in cows is in fact so serious, and its causes so little understood by cattlemen or even by farmers themselves, that we shall take this occasion to enlarge upon the

subject. The best way to avoid loss by "ergot" is to feed the grass so closely that no stalks can run-up to seed, and if they do in parts, to pass the scythe over the pastures and cut close all the bunches which are running to seed, also to keep all the hedges and fences close trimmed, for it is notorious that the coarse grasses growing in ditches and borders produce "ergot" in some seasons. It has sometimes been thought that the gross grass produced by the application of nitrate of soda and other artificial manures produces abortion simply because such gross grass has a purging effect on the cows; but we maintain that neither theoretically nor practically is it fair to blame the manures used, whether artificial or dung and compost. There may be, and often is, internal irritation produced by eating gross grass in the spring without any counteracting food such as bean or barley meal, but it would not necessarily produce abortion. Let us therefore look to accidental causes, such as injury received by breaking-out over fences and ditches, in going through gateways, or from blows one to another, and then one case of abortion is often the means of contributing to a serious spread in the herd by the sympathy before alluded to. It must be borne in mind that the first symptoms of abortion are much sooner detected by the animals of the herd than by those in charge of them, and the odour arising from the cow affected through sympathy extends its influence to numbers of animals before detection by the owner.

In passing to the subject of root-feeding we do not advise the use of turnips or swedes, as they always have a more or less injurious effect upon the flavour of the butter before Christmas. Later in the season after the Swedish turnips have been heaped and little yellow buds have grown on the stems, and when the stems have been cut off, we have known them used without affecting the butter. Still we prefer carrots, parsnips, mangold, or cabbages, and in feeding with either of these roots only moderate quantities should be given daily, cake or meal being given in connection with the roots after being passed through Gardener's cutter, and the cake reduced to meal. It will then attach readily to the moist fresh roots and be eaten together, and a most beneficial result will be produced and nothing wasted. The roots will not then disagree with the animals, each food correcting the other, and as it enters the stomach together the utmost benefit will be derived. We reckon that from 50 to 60 lbs. of roots and from 8 to 4 lbs. of cake per day sufficient for a cow, according to size of the animal and other circumstances, such as the proportion of hay or straw given in addition. We prefer straw to hay, because hay may contain "ergot" and cause abortion, but thrashed straw never. When the cows are receiving rich food as above stated hay is too fulsome and often clogs the stomach, causing the cows to refuse their food for many hours in succession; but clean fresh straw never has this effect. It has the advantage of filling the stomach and assisting rumination, and has nutrition as well, as shown by analysis by Dr. Voelcker. We do not give the analysis here, as that will appear probably in an article at a future time, the subject to be on "The Use and Abuse of Straw."

The management of the cows both in winter and summer requires a notice from us. In the winter months if the weather is mild and open they may run out into pastures only for a little fresh air and exercise; but this is not necessary unless there is a little grass to be picked up. The housing at night usually begins not later than the 1st of October, even in our most salubrious climates, such as the south-western and south-eastern counties; and the period of allowing the cows to lie out at night commences about the middle of May. In case there may be a good bite of grass the cows will even then do better to be housed at night and receive supplementary food as above stated, for we often have sharp white frosts at night in the early part of the month of May. Cows should never enter the pastures until there is a fair crop of grass, otherwise they often stand about leaving their droppings where it does no good, and this must be wrong when we consider that high feeding ought to assist in making the pastures more productive.

WORK ON THE HOME FARM.

The horses will still be employed in harrowing, rolling, drilling, &c., of the land for Lent corn, and the sooner it is finished now the better, for it is seldom a good malting sample of barley is produced sown after the middle of the month of April. Oats also give the heaviest sample and the best yield when sown before this period. The seeds of clover and grass we prefer to sow at the same time or immediately after the Lent corn is sown, and it is important that the seeds should not be too deeply buried; we therefore recommend that they should be sown after the ring roller, and only chain-harrowed afterwards. The next work will be preparing the land for mangold, and in case no autumn tillage was done the work must now proceed with all the dispatch possible, for we believe that, generally speaking, mangold is sown too late. The middle of April is not too early for sowing this crop. Some farmers, however, are afraid of the night frosts killing the young plants, but in our experience we have never known it done, nor do we believe that the idea should prevent early seeding, which is so desirable in order that the crop of bulbs should be ripe and fit to

store away early in the autumn. Large crops of mangold are often seriously injured at the time of taking up by the night frosts, which usually occur at the end of the month of October.

The present is a good time for sowing lucerne, whether we sow it in Lent corn or wheat land or on a fallow. We much prefer the former, for when seeded in corn, especially in the wheat, is nearly sure to take. Our plan is to sow 20 lbs. per acre of lucerne seed mixed with 4 lbs. per acre of yellow suckling, harrowed-in, then left rolled; in this way we have seen the crop very even and the produce abundant. The first year the suckling, too, fills up the space between the lucerne plants and keeps down the growth of grass and weeds, which are very often found injuring the lucerne whilst the plants are young. When lucerne is sown on a fallow it is usually drilled with the same quantity of seed without suckling or anything else in admixture. It is usual to drill the seed at about 14 inches between the drills, and as soon as the rows of plants can be seen the ground should be flat-hoed to destroy weeds; and, again, it will require hoeing before any crop can be cut towards the autumn. The crop will be best cut whether there is little or much produce, as this will clear away those weeds which may have survived the second hoeing. In drilling upon a fallow, however, the plants are liable to be attacked by enemies, such as wireworm and the little white slug, which do not injure them when sown in the corn; and therefore when we consider the expenses of hoeing, which in wet seasons cannot be done at all, we can only recommend the seeding in corn. With respect to the value of the crop there is no doubt that upon sandy land, sandy loam, or clay loam this plant will produce an abundance of green fodder, and more than any other plant. It is specially adapted for small farms with orchards. When cultivated under the trees or partially so the turf is broken up and dug-in, and the land seeded to lucerne and hoed every year. This partial tillage will wonderfully assist the growth of fruit trees, which in many cases with turf under become stunted and moss-grown. This cultivation, together with pruning, will soon produce favourable results.

The time has now arrived when top-dressings upon corn and grass lands may be applied with the best advantage. The dressings now most in use are 1½ cwt. of nitrate of soda with 3 cwt. of superphosphate, or 2 or 3 cwt. of Peruvian guano per acre. When either of these dressings are applied to pasture land 2 cwt. of salt may be sown with the nitrate of soda, and a small quantity of damp ashes mixed with the guano to prevent its flying before the wind, which often prevents a regular application. If we look to the analysis of these two dressings it will be found that they are very similar in their composition as regards nitrogen and the phosphates, and either dressing will have a stimulating effect upon the grass; the nitrate, however, acting quickest unless rain succeeds immediately after the application of guano. When we have a luxuriant crop of grass produced by these and such-like manures it will require the utmost care when the cattle, especially milking cows, are first turned into it, for in early spring after being fed on roots, cakes, hay, &c., the cows may suffer in various ways unless they have only a moderate quantity, or are grazed only for an hour or two at first. They may suffer from purging; this, however, cannot be considered a serious matter as affecting the animals. There is, however, often found upon highly manured grass after a night's frost or two a minute fungus produced on the leaves, commonly called "red rust." What effect this may have upon animals eating it we are not prepared to say, nor could we say that the prejudice existing against nitrate used on pastures has any justification, particularly, as is asserted, in producing abortion. In the absence of analysis of grasses manured with nitrate and other artificial manures, such as guano, we are not prepared to admit, nor do we believe that either scientifically or practically that injury to cattle can be inflicted unless by the injudicious use of the grass.

The planting of cabbages raised last autumn should now be going on. The sorts for succession as cattle food are first the Oxheart, the Champion, and last the Drumhead Savoy. If the land has been prepared in the autumn the dung may be laid out, and in the act of ploughing the dung may be raked into every third or fourth furrow, and then plant the cabbages on the furrow immediately over the dung. We prefer planting with the spade, as plants with any length of stem can be set without difficulty.

SYMPHYTUM ASPERRIMUM (PRICKLY COMFREY).

ONE of your correspondents asks for the experience of those who have tried it. It having been strongly recommended for cattle-feeding and as a plant which will stand drought, I sent out one thousand roots about three years since to the Rajawelle estates in Ceylon, where it was planted out and grew very fairly in moist weather, but the last accounts are that "it is suffering much from want of rain," none having fallen for six weeks. After being cut back once or twice it stools out and gives a good supply of herbage, but the cattle do not relish it. I also about the same time planted out a dozen roots in my garden, and, as in Ceylon, after being once cut it stools very fairly, but my cows

reject it. My horses did not refuse it, but then they had very little green meat given to them. The roughness of the leaves seems to be disliked by the cattle. Whether pigs will eat it I cannot say. My soil here is rather light, and I used no manure in planting it.—W. D. P.

POULTRY KEEPING IN TOWNS.

As a very large number of persons in the suburbs of London and other large towns keep poultry in confined situations they little know the great annoyance the birds are to many neighbours, who would think kindly of them if poultry owners would endeavour to prevent this. In many instances elderly people and invalids are deprived of much necessary rest by the incessant crowing of the cooks, Cochins and Bantams in particular, at early dawn. During the dark months of winter the crowing is seldom heard. I recommend all keepers of poultry to adopt the plan of every evening, when their fowls are gone to roost, of shutting them up in darkness till the morning. The fowl house might easily be so contrived as to keep them in total darkness by a slide to let down and pull up till the time the owners or servants are about. I think this would be very effectual and attended with little trouble or inconvenience. During the winter months this precaution would not be needed.—Q.

PIGEONS FOR THE TABLE.

It has often struck us as a pity that these delicious birds, so readily reared in large quantities, are not more easily and cheaply bought in England; even where they are to be had in the markets they are tough and dry, and utterly unlike those which we kill from our own Pigeon houses, or which are to be procured in Continental markets. Good henwives and poultrymen improve the flesh of their Turkeys, or Ducks, or fowls by special feeding; but it never occurs to them to feed their Pigeons with the same object. A Pigeon, too, is generally considered a Pigeon, and no attention paid to the particular breed.

The medium-sized Runts we have always found excellent on the table. Everyone who has tasted the delicious Pigeons of Italy will remember their flavour, and they are for the most part Runts; not the unwieldy monsters seen at our shows, and which are most careless mothers, but a bird about half their size in weight. We once found in an old poultry book a recipe for fattening young Pigeons on maize soaked in milk. The direction was that at three weeks old the young birds should be taken from the parents, and fed several times daily on as much of this food as they can eat. We observed not long ago a similar system pursued by a poulterer in Genoa. In a quiet out-of-the-way court or market he had a vast number of birds—Turkeys, Guinea Fowls, Ducks, Fowls, and Pigeons. These all lived in baskets in the open air till required for use, a plan which could hardly be carried out in this climate, though we believe they were taken into sheds at night. He showed us his various ways of feeding, but that which interested us most was the rapidity with which he fed his numerous Pigeons. He seized each bird with the left hand, and with the right thrust a funnel into its throat, into the mouth of the funnel he threw a handful of millet, and with a dash of water from a bottle sent the whole of it down the bird's throat; in this manner we should think he fed at least five birds a minute.

If pursued on a large scale some such plan might be a profitable one, for far more birds could annually be reared from one pair if taken from them at three weeks old than if left in the Pigeon house, where many get maltreated by other Pigeons, others starved by their parents too eager for fresh progeny, while others disturb their parents and cause their eggs to be spoilt.—C.

RABBIT CROSSES.

DID we believe in the Darwinian theory in its entirety we could easily explain the existence of so many breeds. If the human tribe was originally of the Pongo type, then we can easily understand that at one time all the varieties were identical, and that development has made the different varieties. Such a theory is the most simple one that can be adduced, and is the only way to account for the number of breeds in addition. The original type may have been large or small, or of the average, and the difference in size of the varieties may be very marked in consequence of the different classes of treatment, both in food and exercise, to which the various sections may at different times have been subject. Thus the warm climate of Spain, with the good diet of fruits and vegetables, may easily account for the improvements in the Lop variety, the ears being so much affected by the temperature. The long wool of the Angora Rabbit may have been caused by similar treatment to that which caused the Angora goat and sheep to be coated so beautifully. The strong sturdy limbs of the Chinese or Himalayan Rabbit may be attributed to the climate and the broad expanse of uncultivated, but notoriously rich, land through which they may have roamed. The Patagonian and the Belgian Hare both hail from central Europe, where a milder climate than ours

reigns. This no doubt has influenced their size, added to the care that has been bestowed on the question of Rabbit breeding and feeding by the inhabitants. Still it is strange that the little Dutch claims as its place of extraction a country but a few miles further north, and yet is so small. The only explanation is that the Dutch at home is not necessarily the same as the Dutch here, and that much of the diminutive is the work of a fickle fancy rather than an exact form of the breed.

In speaking of monstrosities we shall deal with foreign varieties that have been crossed, and more particularly with crosses that are decidedly heterodox. Pursuing our line of thought it is easy to imagine how that one breed having been formed another could easily follow, and that by crossing considerable variety might be made. Probably at one time there were but very few varieties, but that by crossing the number increased. Most of us can remember the formation of two new breeds, and all of us one. The latter is the Silver Cream, and the second one the Siberian. Both these formations were very simple, and no doubt many of the others came about in a similar way.

The Siberian is the result of a cross between an Angora and a Himalayan. The direct produce of a cross between these two is by no means perfect. The offspring in that case takes more after the father than the mother. If an Angora doe is placed with a Himalayan buck the young will have fairly dark points, but the wool most indifferent and not more than half its proper length. The feet are very likely to be very streaky, but the other points will be very dark but not quite so black as the father's. The frame will be weaker than that of the Himalayan, but much stronger than that taking of the Angora. Reverse, and pair an Angora buck with a doe of the Himalayan variety. The young will have fairly long hair or wool, but the points will be very light; the feet often are very grey in this case. Of course, development and careful crossing have improved the breed. The Silver Cream was at first a cross between two varieties, it is not very easy to say which, but it is now quite a distinct breed. A few crosses may be interesting to notice.

If a Dutch is crossed with a Himalayan the result will be by no means satisfactory. The dark points of the Himalayan are generally apparent in all the young ones, whatever the colour may be, the effect being strange. A Dutch with an Angora produces a litter almost solely composed of badly woolled and badly coloured Angoras. The wool is about two-thirds the right length, but more like the father than the mother. A Dutch and Silver-Grey cross is very weak, the beauty of both being quite lost, and most of the young ones being apparently only common Dutch Rabbits, and often of the poorest colours and marking. If the Dutch is fawn it is possible that a Silver Cream may be found in the litter, but no great reliance can be placed on it. A Silver-Grey, Belgian Hare, or Patagonian crossed with an Angora produce more or less badly-marked short-woolled Angora, the wool being longer if the buck be Angora than if a doe of that breed be selected for the cross. Cross any one of these three with the Himalayan, and both breeds will be deteriorated. The young will be grey and short hairs, the points being probably darker, something like the Himalayan. If Creams and Silver-Greys are crossed a very mealy shade of silvering is produced. Lops, of course, cannot be advantageously crossed with anything, because a cross must tend to shorten the ear. A Silver-Grey crossed with either of the very large breeds makes a healthy stock, valuable for feeding and killing. Belgian Hares and Patagonians may be crossed to obtain a capital mongrel, very large and heavy, and very easy to be fattened. It is the best for food that can be imagined. Polish crossed with Himalayans causes the points of the latter to be much weaker, and detracts from the health and strength. If either of the component breeds of the Siberian—that is, an Angora or Himalayan—be paired with one of the breed the result will be that the offspring take very much after the imported pure-bred.—GERRA.

VARIETIES.

FROM an excellent paper on "Farm Work in Harvest," read at the Central Farm Club by Mr. Rose of Melton Magna, Norfolk, we cite the following, which is worthy of attention at the time when land is being prepared for root crops:—By growing a larger breadth of land with mangolds we might in some measure facilitate harvest work, for by growing more of this valuable root the farmer must of necessity be in a forward place with his cultivation, besides gaining an advantage in being compelled to hoe them early in consequence of their early sowing. We also get more time between the hay and corn harvest for carting and spreading manure for wheat and for trimming fences before harvest commences. In speaking of early-sown roots as being important for us to grow so as to have all possible work completed before harvest I would not wish to omit making mention of kohlrabi, a most valuable root for feeding purposes, which should be sown early, and succeeds well on good land. There are even now some persons who cannot believe it is right to grow more than a third of the root land with mangolds; yet many of the best farmers in Norfolk are to a great extent discarding the growth of white

turnips either for early or late use, and it is an undisputed fact that mangolds are far more nutritious and better in every respect for either purpose than white turnips are.

— COPE's *Tobacco Plant* estimates that the tobacco annually consumed in the world amounts to about two thousand millions of pounds; and that if the leaves were made into a roll 2 inches in diameter we should have a "tobacco serpent" which, following the direction of the equator, would wind around the earth thirty times.

— THE extent of apiculture in America is so considerable that the product of wax in the United States is stated to be 20,000,000 lbs. annually, and increasing—worth in money at least six million dollars. Of this about 700,000 dollars worth are exported, and about 1,200,000 dollars' worth of honey also goes abroad. The total product of honey and wax is worth at present in the United States nearly five million dollars—upwards of £1,400,000.

— PIGS consume material that would otherwise be wasted, while they probably convert certain kinds of food into meat as economically as any other animals. They are capable of remunerative returns when properly managed. Aside from the necessities of home consumption, it must be remembered that low prices always induce increased consumption both at home and abroad. In 1876, says the *American Cultivator*, the United States sent abroad \$9,664,456 dollars' worth of bacon and hams, 5,744,022 of pork, 22,429,485 of lard; while in 1877 the exports had increased to 49,512,412 dollars' worth of bacon and hams, 6,296,414 of pork, and 26,562,665 of lard, or a total during the two years in English currency of £81,085,824.

— A GREAT proportion of the potatoes required for home consumption is drawn from the Continent, and Malta has recently helped to swell the supply. For the last few years the island has been steadily increasing its production, and the potatoes grown there are remarkable for their soundness—so much so that there is literally no waste whatever. Quite lately the steamer *Peshawar* brought over from the Mediterranean Arsenal 200 tons, which found a ready sale at about 9s. per cwt.—a most moderate price considering the excellent quality of the produce. As throwing some light on Continental sources of potato supply we annex a list of the imports into London during one week:—106,704 bags from Hamburg; 11,497, Antwerp; 13,522, Stettin; 8,202, Bremen; 2,074, Ghent; 771 sacks, 64 tons, Dunkirk; 771 sacks, Rouen; 892, Harlingen; 200 sacks, 150 bags, Boulogne; and 241 packages, Malta.

— THOSE are fortunate who have a good stock of mangold for the ewes and lambs. It is now that the value of this root is best seen; a moderate allowance, either cut up or thrown about on grass or seeds, is of great use in making milk. Decorticated cotton cake, palm-nut meal, and Indian corn are all low in price, and a small outlay in such materials will prove a good investment, not only for the ewes and lambs, but for young horned stock. It is a great thing to have the animals fresh for grass; no time is wasted in making-up lee-way; indeed, the great secret of successful rearing is to have the animals always progressing, and never stationary or going back; regular feeding is the secret.—(*The Field*.)

— FRANCE now counts twenty "agronomical" stations, where farmers can have soils, manures, plants, &c., analysed for a very small fee. There are plots of ground attached to these "field laboratories," where purely scientific agricultural problems are solved by direct experiment. The farm schools are institutions apart, and are more and more assuming the valuable rôle of representing the most approved practices specially adapted to the husbandry of their region. There is a total of 147 of those stations in Europe.

— THE experience of many thriving farmers, says an American writer, proves that better animals are obtained by breeding them on the farm than by purchasing them. More care is bestowed in selecting the likely offsprings of tried animals; they will go on fattening more rapidly and uniformly than strangers picked up here and there, for it takes some time before these get acquainted and become content enough to lay on flesh kindly in their new home: and, moreover, the tendency of prices for young stock is upwards, and the probability is very strong that ere long it will not pay farmers to go into the market for young animals. In any case it is, as a rule, more profitable to breed the stock one handles than to purchase it.

— THE supplies of potatoes at the Borough and Spitalfields Markets are limited, and the trade continues steady. Kent regents, 200s. to 240s.; Essex regents, 180s. to 190s.; ditto rocks, 100s. to 140s.; flukes, 200s. to 240s.; Victorias, 190s. to 220s. per ton.

THE HUSBANDRY OF BEES.

THOUGH I know some have written well and truly, and others more plentifully upon this theme, yet somewhat have I learned by experience (being a bee-master myself), which hitherto I cannot find recorded.

BEE HOUSES.—The first provision requisite for keeping bees is a house. Decay, rain, and weather destroy the hives and covers, and cold most of all is hurtful for the bees. Therefore you must have a house made along a sound and dry wall in your garden or in your orchard, for bees love flowers and wood. The form is a frame standing on posts with one floor (if you would have it held more hives two floors), boarded, laid on bearers, and back posts covered over with boards flatwise. Let the floors be without holes or cliffs; though your hives stand within a hand-breadth the one of another, yet will the bees know their home. In this frame may your bees stand dry and warm, especially if you make doors, like doors of windows, to shroud them in winter. Such protection I find that it strengthens my bees much, and my hives last six times longer than when exposed.

HIVES.—Mr. Markham commends hives of wood, I discommend them not; but straw hives are in use with us, and I think they combine handiness, closeness, warmness, and dryness. Bees love no external daubing or such-like. Sometimes occasion shall be offered to lift and turn hives, as shall appear hereafter. One light entire hive of straw in that case is better than one that is daubed, weighty, and cumbersome. I wish every hive for a keeping swarm to hold three pecks at least by measure, for too little hives procure bees in casting-time either to lie-out and lose time, or else they cast before they are ripe and strong, and so make weak swarms and untimely; whereas if they have room sufficient they ripen timely, and casting seasonably are strong and fit for labour at once. Neither should the hive be too great, for then the bees loiter and waste meat and time.

HIVING OF BEES.—Your bees delight in wood for feeding, especially for casting, therefore want not an orchard. A May swarm is worth a mare's foal; if they want wood they are in danger of flying away. Any time before midsummer is good for casting and timely; before July is not evil. I much like Mr. Markham's opinion for having a swarm in combs of a dead or forsaken hive, so they be fresh and cleanly. To think that a swarm of your own or others will of itself come into any such hive is a mere conceit. *Experto crede Roberts.* His smearing with honey is to no purpose, for the other bees will eat it up. If your swarm knit in the top of a tree, as they will if the wind beat them not to fall down, let the stool or ladder prescribed in the orchard do you service.

SPELKS.—The less the spelks are, the less is the waste of your honey, and the more easily will they draw when you take your bees. Four spelks athwart and one top spelk are sufficient. The bees will fasten their combs to the hive. A little honey is good, but if you want, fennel will serve to rub your hive withal. The hive being dressed and ready spelkt, rubbed, and the hole made for their passage (I use no hole in the hive, but a piece of wood holed to save the hive and keep out mice), shake in all the bees you can, the remainder will follow. Many use smoke, nettles, &c., which I utterly dislike, for bees love not to be molested. Ringing in the time of casting is a mere fancy; violent handling of them is simply evil, because bees of all other creatures love cleanliness and peace. Therefore handle them leisurely and quietly, and their keeper whom they know may do with them what he will without hurt. Being hived at night, bring them to their seat. Set your hives all of one year together.

SIGNS OF BREEDING IF THEY BE STRONG.—1, They will avoid dead young bees and drones. 2, They will sweat in the morning till it run from them, always when they be strong.

SIGNS OF CASTING.—1, They will fly drones by reason of heat. 2, The young swarms will once or twice in some fair seasons come forth mustering, as though they would cast, to prove themselves, and go in again. 3, The night before they cast, if you lay your ear to the hive's mouth, you shall hear two or three, but especially one above the rest, cry "Up, up, up," or "Tout, tout, tout," like a trumpet sounding the alarm to the battle.

Much decanting there is of and about the master bee and their degrees, order, and government; but the truth in this point is rather imagined than demonstrated. There are some conjectures of it—viz., we see in the combs divers greater houses than the rest, and we commonly hear the night before they cast, sometimes one bee, sometimes two or more bees, give a loud and several sound from the rest, and sometimes bees of greater bodies than the common sort. But what of all this? I lean not on conjectures, but love to set down what I know to be true, and leave these things to them that love to divine.

Keep none weak, for it is hazard oftentimes with loss. Feeding will not keep them, for being weak they cannot come down to meat. If they come down they die, because weak bees cannot endure cold. If none of these, yet will the other bees, being strong, smell the honey, and come and spoil and kill them. Some help is in casting time to put two weak swarms together, or, as Mr. Markham well saith, "Let them not cast late by raising them with wood or stone," but with imps, say I. An imp is three or four wreaths wrought as the hive, the same compass to raise the hive withal; but by experience in trial I have found a better way by clustering for late or weak swarms, hitherto not found out of any that I know. That is this: After casting time if I have any stocks proud and hindered from timely casting with former winter's

poverty, or evil weather in casting time, with two handles and crooks fitted for the purpose I turn up that stock so pestered with bees and set it on the crown, upon which so turned with the mouth upward I place another empty hive well dressed and spelt, into which without any labour the swarm that would not depart and cast will presently ascend, because the old bees have this quality (as all other breeding creatures have) to expel the young when they have brought them up. There will the swarm build as kindly as if they had of themselves been cast; but be sure you lay betwixt the hives some straight and cleanly sticks, or rather a board with holes, to keep them asunder, otherwise they will join their works together so fast that they cannot be parted. If you so keep them asunder at Michaeltide, if you like the weight of your swarm (for the goodness of swarms is tried by the weight) so caught, you may set it by for a stock to keep. Take heed in any case the combs be not broken, for then the other bees will smell the honey and spoil them. This have I tried to be very profitable for the saving of bees.—A KILKENNY BEE-KEEPER.

[This is extracted from "Way to Get Wealth," an old book published in 1638.—EDS.]

(To be continued.)

NATURAL DEATH OF BEES.

WHAT tidings of the loss of hives come to us from many apiarians! "I have lost all my hives." "Nine or ten of my twelve stocks are dead." "I have only one hive living out of four." "Have you any to sell? all the bees here have died out." "Every one of my bees is dead, and all have gone, leaving plenty of honey in the hives." A letter from a gentleman in Sheffield this morning says, "Last year was a very bad one for bees here, but by attention to mine (a swarm) I have succeeded very well, whilst my neighbours have lost nearly all their hives."

Some months ago I predicted that the loss of hives this spring time would be great, but I little thought that the fatality would be so great and general as it has been. No winter during the last eighteen years has witnessed the extinction of so many communities of bees. The cold of the winter of 1860 was signally disastrous to bee life in the north of England; but I fancy that more hives in proportion to the number kept have been lost during the last few months than were lost by the frost of 1860.

Neither frost, nor moisture, nor foul brood, nor dysentery, nor pestilence of any kind, nor hunger has been the cause of the loss of so many hives this spring or season. The bees have died a natural death, or in other words, of old age. The misfortune has been that the weather has been so unfavourable that they could not breed young bees to take their places before they fell dead on the boards by reason of age. Owing to last year being unfavourable for honey-gathering bees ceased breeding a month or two before the usual time of doing so; and as the spring months of this year have been cold and discouraging the bees of many hives never commenced breeding at all, and have died off naturally; the allotted span of their lives being but nine months, and many die before they reach that age.

Where bees have been artificially treated and well nursed things are not so bad, for in unfavourable seasons kindly treatment is a prime factor in the apiary. In time everybody finds that those who feed wisely and well are the most successful bee-keepers. In early spring when weather is cold there is a margin of risk in feeding which causes the bees to fly about and commence breeding, but in such springs as the present one there is a greater margin of risk in not feeding.

These occurrences are mentioned now with the hope that young apiarians will not be too much discouraged and cast down by their misfortunes, and that they will not trace their losses to their own mistakes or ignorance, for most of the bee-keepers in these northern parts have suffered loss from the ungenial weather of this spring. Two years ago we had a spring something like the present one, only not quite so bad and destructive, and the hives were in better condition and outlived the cold weather. Many of the hives then were greatly weakened by loss of bees before brood was hatched, but afterwards the weather became favourable, and we had a year of honey and success in 1876.

Some fifty years ago a bee-keeper in my native village bought twenty hives for £20. Eighteen of the twenty died during the winter following, and from the two that survived he had £20 worth of honey. We sincerely hope that the bee-keepers in the south of England have not sustained losses to the extent of those in the north, for if they have been equally unfortunate bees will be scarce in this country for two years. Many hives now living are so weakened by loss of bees that the season will be nearly over before they will be ready to swarm. Yesterday (April 11th) I saw my bees seeking for water, and to-day they have been busy carrying some from milkpans placed before their hives. Though I have not seen them seeking water this season before yesterday, they may have been doing so. Water is necessary in hives for breeding purposes. As soon as they begin to multiply and hatch brood they will make rapid progress. I shall be pleased if some of your readers will kindly inform us through the Journal how

the bees in their neighbourhoods have stood the stress and strain of the last few months.—A. PETTIGREW.

OUR LETTER BOX.

HENS' FEATHERS COMING OFF (*Amateur K.*).—The hens are moulting. They do so annually at this season.

LARGE EGG (*S. J. A.*).—Four ounces and three-quarters is a very large size, and very unusual.

FOOD FOR TUMBLERS, &c. (*A Beginner*).—You do not exactly state whether yours are Flying Tumblers or what are termed the Short-faced, but we apprehend the latter, as you mention Kites and Mottles being among them. Old tares are without doubt best for Short-faced Tumblers, and we would advise giving them to them without any other food. Maize, unless it be a very small sort, is too large. As to peas they seem to be the natural food for Pigeons, and which they prefer to anything else, but are only suited for the commoner kinds or more naturally bred birds. If your Tumblers are flying birds we should not give them such expensive food as tares; maize and peas are quite good enough. If you have the high-class birds only give tares with wheat in moulting time to keep them in flesh. If you can get very small old beans they are excellent, but usually are too large for the throats of the birds. From a Kite cock and Red Agate hen the progeny will most likely be one of each colour.

HIMALAYAN RABBIT (*Rubry*).—There is a full description and an engraving of this Rabbit in our manual entitled "The Rabbit Book."

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.				IN THE DAY.						Rain.	
1878.	Barometer at sea level and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Air at 1 foot.	Shade Temperature.		Radiation Temperature.		In. In sun.		On grass
April.		Dry.	Wet.			Max.	Min.	In sun.	On grass			
We. 10	Inches. 29.907	deg. 47.7	deg. 48.1	S.E.	deg. 45.0	deg. 54.5	41.3	deg. 91.0	deg. 38.3	2.557		
Th. 11	29.994	44.0	48.2	N.E.	44.0	53.0	43.3	70.1	43.0	0.675		
Fri. 12	30.175	50.7	48.3	N.E.	43.6	61.4	39.3	102.7	25.4	—		
Sat. 13	30.040	52.3	48.0	S.S.E.	44.9	62.8	40.2	110.1	31.7	0.043		
Sun. 14	30.006	53.5	51.2	W.	45.3	64.8	40.4	94.2	45.9	—		
Mo. 15	30.065	53.6	51.3	N.W.	47.1	62.2	44.6	93.6	36.0	—		
Tu. 16	29.838	49.7	48.5	S.W.	47.5	60.7	45.1	92.3	36.6	0.092		
Means	29.999	50.2	47.7		45.2	59.9	43.3	93.4	37.3	3.367		

REMARKS.

10th.—Bright morning; fair and dull, little sunshine between 1.30 and 2.30 P.M.; rain at 5.15 P.M., and during the evening.
11th.—Very heavy rain all night, and continued till 1.30 P.M.; fine afternoon; 12th.—Fine warm sunny day; bright moonlight night. [starlight night.
13th.—Misty morning, fine after 9 A.M.; cloudy in afternoon, rain from 4 P.M. to 5.30; dull evening.
14th.—Fair rather overcast day; sunshine between 2 and 3 P.M.; cloudy night.
15th.—Dull close morning; sunny and bright in afternoon; fine moonlight night. Lunar halo 8.30 P.M. to midnight. [ing about an hour.
16th.—Wet morning; fair after 11.30 A.M.; thick mist and drizzle at 3.30, last. The week is remarkable for containing one of the heaviest falls of rain, which have occurred in the metropolis. Slight rain began in the evening of Wednesday, and between midnight and noon on Thursday the remarkably large fall of 2.80 inches occurred, producing serious floods in many places.—G. J. SYMONS.

COVENT GARDEN MARKET.—APRIL 17.

WE are now better supplied with new Grapes than we have ever been in previous years, the majority arriving from the Channel Islands in good condition and forward in point of quality, the value of home-grown fruit being materially affected thereby. Strawberries are reaching us in better supply, and for a few days will find an inferior market. French early vegetables have now commenced, and consist of Asparagus, Beans, Turnips, Carrots, Artichokes, and salading. Trade quiet.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½	sieve	2	6 to 8 0	Melons.....	each	0	6 to 8 0	
Apricots.....	dozen	0	0	0	Nectarines.....	dozen	0	0	0
Chestnuts.....	bushel	10	0	20 0	Oranges.....	½	100	3	0 10 0
Currents.....	½	sieve	0	0 0	Peaches.....	dozen	0	0	0
Figs.....	dozen	0	0	0 0	Pears, kitchen.....	dozen	1	0	3 0
Filberts.....	½	lb.	0	6 0 9	dessert.....	dozen	3	0	12 0
Cobs.....	½	lb.	0	6 0 9	Pine Apples.....	½	lb.	1	6 3 0
Gooseberries.....	½	bushel	0	0 0 0	Plums.....	½	sieve	0	0 0 0
Grapes, hothouse.....	½	lb.	0	0 20 0	Raspberries.....	½	lb.	0	6 0 0
Grapes, new.....	½	lb.	5	0 16 0	Strawberries.....	½	lb.	8	0 16 0
Lemons.....	½	lb.	6	0 10 0	Walnuts.....	bushel	5	0	8 0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	dozen	2	0 to 4 0	Mushrooms.....	pottle	1	6 to 2 0		
Beans, Kidney forced.....	½	100	1	0 2 0	Mustard & Cress.....	punnet	0	2	0 4 0
Beet, Red.....	dozen	1	6 3 0	Onions.....	bushel	2	0	0 0	
Broccoli.....	bunch	2	6 0 0	Pickling.....	dozen	0	4	0 6	
Brussels Sprouts.....	dozen	1	0 2 0	Parsley.....	bunches	2	0	0 0	
Cabbages.....	bunch	2	0 3 0	Parsnips.....	dozen	0	0	0 0	
Carrots, new.....	bunch	2	0 3 0	Potatoes, frame.....	½	lb.	0	6 1 5	
Caulicuffs.....	½	100	1	6 2 0	Potatoes.....	bushel	3	6 7 0	
Cauliflowers.....	dozen	2	0 4 0	Kidney.....	bushel	5	0	3 0	
Celery.....	bunch	1	6 2 0	Radishes.....	doz. bunches	1	0	1 0	
Coleworts.....	doz. bunches	2	0 4 0	Rhubarb.....	bundle	0	6	1 6	
Cucumbers.....	each	0	6 1 0	Salsify.....	bundle	0	9	1 0	
Endive.....	dozen	1	0 2 0	Scorzonera.....	bundle	1	0	0 0	
Fennel.....	bunch	0	3 0 0	Seakale.....	basket	1	6	2 6	
Garlic.....	½	lb.	0	6 0 0	Shallots.....	½	lb.	0	3 0 0
Herbs.....	bunch	0	2 0 0	Spinach.....	bushel	2	6	4 6	
Lettuce.....	dozen	1	0 2 0	Turnips, new.....	bunch	2	0	3 0	
Leeks.....	bunch	0	2 0 4	Veg. Marrows.....	each	0	0	6 4	

WEEKLY CALENDAR.

Day of Month	Day of Week	APRIL 25—MAY 1, 1878.	Average Temperature near London.			Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.			
25	TH	National Auricula Show (Crystal Palace).	61.3	37.3	48.3	4 45	7 10	2 27	11 42	23	2 7	115				
26	F	Queckett (Microscopical) Club at 8 P.M.	61.7	35.7	48.7	4 43	7 12	2 41	10 53	24	2 18	116				
27	S	Royal Botanic Society at 3.45 P.M.	58.3	35.5	46.9	4 41	7 14	2 53	10 3	25	2 27	117				
28	SUN	LOW SUNDAY.	62.2	35.8	49.0	4 39	7 15	3 4	12	26	2 37	118				
29	M	Zoological Society (Anniversary) at 1 P.M.	62.8	37.7	50.2	4 37	7 17	3 15	4 20	27	2 46	119				
30	TU	Easter Law Sittings commence.	63.3	39.8	51.6	4 36	7 19	3 27	5 31	28	2 54	120				
1	W	Society of Arts at 8 P.M.	61.6	39.5	50.0	4 34	7 20	3 40	6 44	29	3 1	121				

From observations taken near London during forty-three years, the average day temperature of the week is 68.7°; and its night temperature 37.3°.

BRITISH FERNS AND HARDY FERNERIES.

IT is now fifteen years since I first became acquainted with and commenced admiring British Ferns. I was then in the employment of a lady who, for the deep love she bestowed on these highly interesting plants, took numerous excursions from home to gather the real wild varieties in their own natural habitats. These she conveyed to her rockery, where she planted them almost entirely with her own hands and gave them her personal attention. The collection she thus formed was an excellent one, and the plants could not be surpassed for luxuriance. This lady also contributed under the signature of "FILIÆ-FEMINA" to the pages of the *Journal of Horticulture* during the autumn of 1864 some valuable notes on hardy Ferns, and described most fully how she collected and cultivated them. I cannot pretend to describe so minutely as did this accomplished pteridologist the beauties of each variety of Fern, but I may mention several Ferns that from experience I can recommend to those of your readers who may wish to possess a small rockery and a collection of these charming plants.

The present month is about the most favourable season of the whole year for planting outdoor ferneries. Many Ferns are now just commencing their new growths, but are not sufficiently far advanced to allow of the spring frost injuring the young fronds. When early growth is made and late frost occurs it interferes with the after progress of the plants, otherwise they will grow away as soon as planted and become firmly established before the hot weather of summer has fairly set in.

The best site for a fernery is undoubtedly where the plants will enjoy the advantage of being protected from brilliant sunshine and rough winds. In almost any out-of-the-way corner an enjoyable little rockery may be made, but under the drip of trees is perhaps the worst possible place that can be selected for planting a collection. In a position where they have shade during the day and yet where they can enjoy a little of the morning and evening sun they thrive admirably. It is also a great advantage to have at the fernery, or near it, a supply of water, for during the summer season the plants must be watered copiously overhead, and if the water can be laid on so as to trickle down the rockwork it is always grateful to the Ferns, and cooling and refreshing on a summer's evening when everywhere else is hot and parched.

The manner of constructing the fernery must be determined by the space at disposal and the material that can be procured with the least amount of trouble and expense. Rough blocks of stone, bricks which have run together in burning at the kiln and known as "burrs," or clinkers saved from the stove fires, and ordinary bricks put together in irregular masses with cement, will all answer the purpose. The rockery should be made in the most natural manner possible, and plenty of space should be left for holding sufficient soil to afford nourishment to the plants in dry seasons; this is very important. Equal parts of turfy loam

and leaf soil with a fair quantity of silver sand will be found suitable to the majority of the hardy Ferns; they will, however, succeed fairly well in ordinary light garden soil. In planting them care should be taken to arrange the evergreen and deciduous varieties, so that in winter when the deciduous kinds have lost their fronds the evergreen Ferns will impart a cheerful appearance to the rockery.

The evergreen varieties are represented, amongst others, by *Scolopendrium vulgare*, *Blechnum Spicant*, some of the *Lastreas* and *Aspleniums* and their numerous garden varieties. The somewhat common Hart's-tongue (*Scolopendrium vulgare*) is a grand Fern, and will grow in almost any soil or situation. It is sometimes found growing out of the crevices of high walls, but oftener in moist and shady positions, in which situations its distinct glossy green fronds render it very attractive, while in more exposed situations it loses its deep green hue. Many of its varieties, of which there is a very large number, are remarkably fine, especially *S. v. crispum*, *S. v. cristatum*, *S. v. marginatum*, and *S. v. ramosum*. Others are very curious in form, while some few are proliferous. I well remember finding a simple crested form growing very plentifully in Devonshire, and once while on a visit to the Undercliffe, Isle of Wight, I saw the largest specimens growing in greater quantities than I have ever seen before or since. When the *Scolopendrium* is planted in the rockery it requires a deep soil to grow it to perfection, which probably accounts for the luxuriant specimens seen in the Isle of Wight.

Blechnum Spicant is a very common Fern, and is found in great abundance in Devonshire; nevertheless it is very distinct, and when planted in a shady nook it has a very pleasing and attractive appearance. Its fertile fronds growing erect and situated in the centre of the tufts of barren fronds which grow generally horizontally, and its thoroughly evergreen nature, commend it to the most limited of collections.

Ceterach officinarum is a dwarf evergreen distinct-looking Fern, and is found growing on old walls, bridges, &c., but will not bear removing well.

The *Polystichums* or Shield Ferns are remarkable for their bold and handsome growth, and can be highly recommended, especially *P. angulare*, *P. a. proliferum*, *P. a. p. Footii*, *P. a. p. Woolstoni*, *P. a. biserratum*, *P. a. cristatum*, *P. a. grandidens*, *P. a. oxyphyllum*, and *P. a. plumosum*. The proliferous varieties produce bulbils very freely on the fronds, which if taken off ultimately become plants.

Lastrea Filix-mas is a very bold-growing Fern, and is invaluable for forming a background for the choicer kinds, while several of the garden varieties of this well-known Fern are most elegant in growth and deserving the most prominent positions in the fernery, most of them being both curious and constant in their variations. The most valuable are *Lastrea Filix-mas Barnesi*, *L. F.-m. crispa*, *L. F.-m. cristata* and *L. cristata aspera*. *Lastreas æmula*, or the Hay-scented Fern, *L. Oreopteris*, *L. dilatata*, and *L. Thelypteris* are also very distinct and good; the latter variety is generally found growing in moist swampy places, and requires treating accordingly: plenty of moisture at the

root and plenty of room to spread are its chief requirements; it is then very attractive.

Some of the Aspleniums are very small-growing Ferns and remarkably curious, especially *Asplenium septentrionale*, *A. germanicum*, and a much more common variety, *A. Ruta-muraria*. These do not usually succeed well under outdoor cultivation, although I once grew a plant of *A. septentrionale* in a pot for some years. *A. fontanum* also makes a very fine pot plant, and may be plunged in its pot during the summer months in the rockery. It is not at all suited to the requirements of the outdoor rockery. *A. marinum* is remarkably beautiful; its deep green fronds are exceedingly pretty, but it also is too tender for the outdoor fernery excepting in the south and south-western counties. I have seen it growing out in a rockery at Teignmouth, Devon, and doing well. It requires a moist atmosphere. *A. Adiantum-nigrum* and *A. Trichomanes* are very pretty, and can be grown successfully in almost all parts of the country; the hedgebanks of the lanes of Devonshire abound with these two species, and so luxuriant are they there as to almost grow out of their natural size and character, especially *A. Adiantum-nigrum*. *A. viride* is a companion to *A. Trichomanes*, but is not so common, being found only in the north of England. Its mid-stem is white, while that of *A. Trichomanes* is black. *A. lanceolatum* is attractive, and will grow well in the south of England. I once found a very large mass of this Fern growing on some rocks on the banks of the Plym not far from the embankment of the railway which passes along that valley. When that railway was formed many tons of solid rock were blasted and carted away for making the embankments, until in many places there were over 80 feet of hard bare rock left. Seventeen years afterwards I was surprised to see luxuriant Ferns, Gorse, and even young forest trees growing in the fissures of those rocks; the collecting decayed vegetation with the humidity of the climate afforded the requisite nourishment.

All the Lady Ferns (*Athyrium Filix-foemina*) are so beautiful and distinct in character that they should be planted rather extensively. They are quite hardy, and during the summer months their young, graceful, and delicate-looking fronds are highly attractive. Some extremely fine specimens of the Lady Fern growing quite naturally and unprotected, and measuring over 4 feet in diameter, I once met with in a wood in the neighbourhood of Poynton, Cheshire, between Hazelgrove and Disley. Numerous varieties are now in cultivation, and they possess such varied points of beauty that they are not surpassed by any of our exotic species. Of these varieties the following can be recommended:—*A. F.-f. coronatum*, *A. F.-f. corymbiferum*, *A. F.-f. crispum*, *A. F.-f. Fieldiae*, *A. F.-f. Friselliae*, *A. F.-f. lacinatum*, *A. F.-f. multifidum nanum*, *A. F.-f. plumosum*, *A. F.-f. Vernoniae*, and *A. F.-f. Victoriae*. This last is the finest of all the crested forms of *Athyrium*.

Osmunda regalis and *O. r. cristata* are true bog Ferns. The last is a very pretty crested form of *O. regalis*. Planted by the side of water or plentifully supplied with moisture they grow most rapidly and are very handsome.

Nearly all the Polypodiums must be included in the selection, especially *Polypodium vulgare* and its varieties *cambricum*, *omnilacerum*, *pulcherrimum*, and *semilacerum*, which are all beautiful. They grow freely if planted shallow in good soil and have plenty of drainage. The Beech Fern, *P. Phegopteris*, and the Oak Fern, *P. Dryopteris*, are deciduous, but their delicate fronds of the softest green are most lovely during the summer months. They should be planted in peat and leaf soil in a shady nook and in a position so that they may not be smothered by the more robust growers. The dwarf-growing and somewhat curious Moonwort, *Botrychium Lunaria*, and Adder's-tongue, *Ophioglossum vulgatum*, are worth a place in the fernery, but are difficult to establish, especially the first-named. An uniform state of moisture and a sharp look-out for slugs (which are very fond of them) is the best advice I can offer. The Adder's-tongue is of very free growth and plentiful in some localities in the meadows. On the banks of the Medlock, near Manchester, I have seen the fields literally covered with it. The pretty little Mountain Parsley Fern is admired by the most fastidious, and succeeds very well out of doors if planted in a shady nook of the rockery.

To possess a complete collection of all the British species and their varieties would involve the expenditure of a large amount of money, but those named will be found sufficient for most beginners, and can be purchased for a moderate sum, many of our nurserymen supplying them from £5 to £7 10s. per hundred, according to variety. I avail myself of this

opportunity of warning purchasers from buying from those hawkers who ply with a basket at their back, for oftentimes what they offer for sale are the proceeds of someone's rockery. I had over thirty rare varieties stolen in this manner during the past winter.

Those who desire to grow Ferns and yet cannot avail themselves of a small rockery, may cultivate the smaller-growing varieties under a bellglass or in Wardian cases in rooms, or on window-sills, for the cultivation of hardy Ferns is, as a rule, very simple and easy. A liberal supply of water both overhead and at the roots during their growing season, a slight protection from late spring frosts, and a sharp look-out for snails, slugs, and woodlice, are the greatest essentials to success.

It will be seen that I have not mentioned the utilising of roots in the formation of ferneries. I am no advocate for them from the fact of their speedy decay, but at Belvidere House, Wimbledon, Mr. Lyne, the excellent gardener there, in making a large rockery intermixed roots with the burrs. Roots in most cases resting on a basement are in a great measure preserved from decay. This rockery is very well arranged, and forms an agreeable feature in a secluded part of the garden.—J. W. MOORMAN.

ROSES INJURED BY SPRING FROSTS.

"DON'T shout before you are out of the wood." Such, I doubt not, will be the truism which will occur to many of your readers as they glanced at my article on the late winter, or at least the kinder-disposed and more gentle critics may murmur this: but I can well imagine the sterner and severer subscribers, such as those who dwell in the midlands and are blessed with the grand Rose soil of those fertile lands, uttering quite different language. "Has this 'WYLD SAVAGE' lost his head altogether now? Is he no longer merely wyld but a raving lunatic? If not what does he mean by writing of the winter being over and the mildest season he has known, when as we read his effusion we have but to look out of the window and see snow 2 or 3 inches deep?" I can but bend my head to the storm, and answer that I have laid myself open to all kinds of unfavourable remarks; but I would ask those who may condemn me, Who would have thought that at the very end of March and the first week of April we should have had such weather? A writer in one of the daily papers commenced a leading article on the 1st of March "We may consider the winter over now;" and I did not write till weeks after this, but my letter being deferred for a week caused the sad (to me) result of my speaking of a mild and genial time for Roses at a time that winter raged with all its fury.

I have, alas! a very different tale to tell now. My Roses have suffered fearfully, and I am confident that if I had pruned so hard as I have been accustomed of late to do I should have lost my whole collection. As it is I have to mourn the decease of many of my best Teas, and the rest are sadly mauled. The late weather has deferred the blooming season for at least a fortnight, and I shall be surprised if the day fixed for the National Rose Show is not much too early for the generality of Rose-growers.

The question next arises, What to do now with the damaged Roses—how to repair the ravages which Jack Frost has made among our cherished pets? I am inclined to advise (and as I write I tremble at the thought of the responsibility I incur) your subscribers to re prune their Roses, to cut away all damaged wood even at the cost of delaying the blooming for a week or so. It is evident that unsound wood only damages the trees. The sap cannot flow freely through wood that is killed on one side, nor can good blooms be expected from trees that have shrunken limbs and diseased blood flowing in their veins. True indeed in this case is the old adage, "Spare the rod (i.e., the knife) and spoil the child," though in its primary sense most of the present generation think it a mistake.

All who had mulched their Roses in March will, I think, have found out the great value of their care and labour, for wherever the Roses have been mulched they will be found to have suffered much less from the frost. I have been much struck at the difference between those few that I have been able to mulch and the mass of unmulched trees. The only hope we have now is, that as we have had such weather in April we may be spared the usual rigours of an English May. If we have but a genial May we shall have a glorious Rose season, but if in addition to the damage caused by the late frosts and snow we have the usual bitter nights in May I do not know what will become of us.

The schedules of the National Rose Show are now issued, and wonderfully liberal they are. I think that they reflect the greatest credit, not only upon the Society in general, but on the members of the Executive Committee in particular.

There is only one remark I should like to make, and that is to ask why the Committee has made the hard and, as I think, unfair rule, "No exhibitor's tickets will be issued." This means, I suppose, that we shall have to pay admission money for our assistants and ourselves if we leave the building.

Last year at St. James's Hall no passes were given to our gardeners, and I do not think such a proceeding either liberal or just; but now it seems no tickets at all are to be issued, and so I suppose even subscribers will have to pay at the doors if they leave the Palace.—WYLD SAVAGE.

VEGETABLE CULTURE.

CHAP. XV.—BEET.

THE original form of Beetroot, which is very inferior to the varieties now cultivated in our gardens, is a native of the south of Europe. Beetroot is a very excellent vegetable when boiled or baked and eaten with cold meat; it is also an important ingredient of salads. As yet it can hardly be called a cottager's vegetable, because few of them grow it, but in all gardens of any pretensions Beetroot is one of the leading root crops, and no doubt its cultivation will increase amongst amateurs and cottagers when they find out its true worth.

Like all deep-rooting crops Beet requires deep soil to grow it properly. In a shallow soil the roots are very liable to fork into a number of small finger-like roots, but in a deep, free, open soil they push down one straight root from 18 inches to 2 feet in length. Soil which grows Carrots and Parsnips well always produces fine Beet; but Beet is much easier cultivated than Carrots, and it will often thrive and come to perfection in soil and gardens where Carrots fail. We generally grow our Beetroot and Parsnips side by side on the same piece of ground. During the winter or early spring the ground is trenched 2 feet deep, and at the same time only a little thoroughly decayed manure is mixed with the soil. Where the ground was heavily manured for the previous crop it is better not to add any more dung for the Beetroot, because this has always a tendency to cause the roots to fork. Previous to sowing the seed the surface of the ground should be broken with the fork, and turned over two or three times when it is dry. The only thing to avoid in sowing the seed is not to sow it too early. When this is done most of the crop is generally lost in autumn through the plants running to seed. During the last week in April is a good time to sow the seed for the main crop. A little seed may be sown a fortnight earlier than this when a few early roots are wanted, and a few rows might be sown later than the time named. An exposed part of the kitchen garden answers better for Beet than a shaded place. The seed should always be sown in drills 15 to 18 inches apart, and about 1½ inch deep. The seed is much larger than that of many other vegetables, and it need not be sown all along the rows, as two or three seeds dropped together 10 or 12 inches apart are sufficient to produce a crop. In covering up the seed the soil should be pressed very firmly with the rake. The seed is not long in germinating, and as soon as the young plants are distinctly seen the hoe must be run amongst them. I have recommended this practice so often now that it will be seen that hoeing is a system here, and it is a very excellent one. When the young plants are 2 inches high the plants in each tuft should be reduced to two. Hoe after this again, and when the plants are 4 inches high the permanent crop should be left singly. Hoe again after doing this, and continue to do so at intervals of a fortnight until the leaves have quite met in the rows, and after this the crop will mature without further attention.

Beetroot will not stand in the open ground throughout the winter and retain its qualities, therefore the roots have to be taken up and stored. The best time to take them up is about the end of October or early in November. The roots require to be very carefully dug out of the ground, because when they are the least broken the juice flows out and they are spoiled. For this reason in taking off the leaves they must never be cut close to the crown, but 3 inches from it. The roots should only be taken up when the soil is dry, and no attempt should be made to clean the soil off them as they are lifted, but after they have been spread-out in an open shed for a few days to become partially dry the roughest of the soil may be rubbed off with the hands, and the roots stored in layers amongst

dry sand in a cool shed or cellar. Here they must be turned occasionally and the decaying roots be picked out.

At this period of the year many of the crowns begin to sprout. These growths must be rubbed off when the roots are turned, and now they should not be laid in such large heaps as they were at first, as close packing encourages them both to grow and decay.

Dell's Crimson and Pine Apple Beet are our two favourite sorts, as they are both handsome and not too large in form, and are excellent in flavour and colour. Seakale Beet is cultivated like the other sorts, but the ribs of the leaves and not the roots of this variety are eaten. When cooked like Seakale few would know the difference between the two vegetables. Two dozen plants will supply many dishes, and all who care for Seakale in winter and spring should grow this Beet.—A KITCHEN GARDENER.

THE POLYANTHUS.

ONE of the most interesting features at the Newcastle-upon-Tyne Spring Flower Show was the collections of Polyanthus. Some of the plants, and especially those that stood highest on the prize list, were exceedingly well grown, and it was a great treat to see some of the old sorts that were grown nearly half a century ago. George IV. (Buck), for instance, what a splendid flower it is when well grown in the northern air! None of the recently raised varieties are anything nearly so good. The finest variety, Pearson's Alexander, was not exhibited, but it is in the hands of some of the growers, and no doubt it will be seen soon and take its place at the head of the lists as it did fifty years ago, followed by George IV. I know it would be interesting to the growers of the present day to know the names of Polyanthus cultivated when our fathers were young men, and as I have recently heard of many of these varieties being still grown I will give the names of all the best sorts in the hope that some correspondents of the Journal will state what sorts they still have under culture. They stand very nearly as under in the order of their merit:—Alexander (Pearson), George IV. (Buck), Prince Regent (Cox), Princess Royal (Collier), King (Nicholson), Invincible (Crownshaw), Jolly Dragoon (Eckersley), Bang Europe (Nicholson), Lord Crewe (Clegg), Prince of Orange (Cartwright), Lord Nelson (Park), Formosa (Burnard), Tantarara, Countess, Lord John Russell, Commander-in-Chief, Mary Ann, Beauty of Over, and Othello. There are some good varieties of more recent date, some of which are rather scarce and others are common. President, Exile, and Cheshire Favourite are plentiful, and such sorts as Sanderson's William IV., Rev. F. D. Horner, and Lancer are to be obtained.

The culture of the Polyanthus is very simple. The plants are much hardier than the Auricula, and do not require any protection from glass except when they are in flower to protect the bloom, and during severe weather in winter from cold rains, snow, and severe frost. I have grown the plants in pots all through the season; but I am not sure that is the best way to obtain the greatest results. I find if they are kept in pots and treated the same as the Auriculas the leaves are repeatedly attacked by green fly and red spider, and the pests have to be destroyed by dipping the whole plant in a solution of Gishurst compound or soft soap dissolved in boiling rain water, and adding to it a little tobacco liquor. Either of these mixtures will be death to the insect pests. Care must be taken not to make it too strong. If there is any thought of danger the best plan is to dip a plant that is of no value in the mixture and wait the result for a few hours, and if it is not injured the mixture may be at once used.

The best plan is to devote a frame in a cool place entirely to Polyanthus, and the plants should be watered overhead every day in hot weather. A good plan is to plant out of doors during the summer months. I have seen the plants do remarkably well planted out in deep rich clayey loam behind a north wall, and all the attention they require is a good soaking of water once a week in dry hot weather. Under such circumstances they are seldom attacked either with green fly or red spider. If they are planted out the plants must be lifted and potted about the end of August or early in September, so that they may be well established before winter. I pot them in rich clayey loam, and add to it about a fourth part of decayed manure and a little leaf soil. The plants are potted firmly, and they are placed in a shady place until fresh roots are formed. If the leaves are perfectly clean in the autumn the plants will start strongly in the spring. I do not allow any

water on the leaves after they start into growth at that season, but admit plenty of air at all times.

Ordinary border varieties make a very fine display if planted out in rich soil, and the best way to raise a stock is to sow seeds of a good strain in May or June; sow out of doors in fine soil, and when the plants are large enough prick them out about 3 inches apart, and when the leaves have nearly covered the ground they must be again transplanted into their blooming quarters; if in beds, 9 inches apart, where they will form a perfect carpet of bloom in the spring of the following year.—J. DOUGLAS.

FRUIT TREE PRUNING.

FOR the nonce I am constrained to assume the post of signal-man, and to hoist the signal for "caution" lest the communications which have lately been published on this subject should induce any unsuccessful fruit-growers to rush from one extreme to another, and in future to do too little as they have hitherto done too much with their pruning knives. There can be no question that pruning has been sadly overdone, that the supply of fruit has not been in proportion to the labour and care bestowed upon the trees, and above all that the expectations formed of the results attendant upon a rigid system of pruning and pinching by line and rule were opposed to the dictates of reason and common sense.

Why do we prune a fruit tree? To regulate its forces so as to secure an equal distribution of vigour in every part of it, to admit light and air freely among all the branches, to induce an abundant lateral growth upon every branch, and to promote the formation of fruit buds at an early period of its existence. We also seek to confine the growth within certain limits so as to adapt the tree to a confined space, where it may be sheltered in spring from the baneful effects of cold cutting winds so often fatal to the blossom, and in autumn from those gales which so frequently beat off the fruit. Lastly, we prune a fruit tree in order that every part of it above ground may be turned to account for the production of fruit. When therefore such a tree has attained its full development it should consist of a main stem, from which spring branches at regular intervals, each branch having a lateral growth of "spurs" upon every part from its junction with the stem upwards to the top.

For the benefit of the uninitiated it may be explained that a "spur" consists of a lateral or side shoot shortened to three or four buds, the shoots from which buds being in turn nipped off when they have grown a few inches in length, and it is the repetition of this nipping process that has much to do with early formation of fruit buds. Now, it is upon the spurs that the fruit comes, and the quantity of fruit in a favourable season will be pretty much in proportion to the length of the branches, the size and vigour of which must of course affect the size and in some degree the quality of the fruit. Such being the case, how can we reasonably expect much or fine fruit off a weakly tree or one stunted to the absurd degree so often practised? I am quite within bounds in stating that I have frequently seen trees upon which pinching and pruning has been carried to such an extreme that each of them, stem and branch, were very little larger than one of the bottom branches of a respectable "pyramid." So eager had the owners been to obtain fruit that not an inch of growth had been suffered to grow beyond the line-and-rule limits. With such toys no practical fruit-grower would care to have anything to do, for they illustrate an extremely bad practice just as forcibly as do those others from which the annual crop of flower stakes is taken in winter.

But there is a medium to which attention may now be usefully called, for at no period of the year than the present can so correct an estimate be formed of the value of any process of culture. The swelling buds afford clear indication of the effects of our treatment up to the present time; and although it is usual to point to a fine crop of fruit as the best indication of success, it may fairly be claimed that if now the branches of a large vigorous tree are thickly set with blossom buds, the formation of which has been brought about by a special process, that process is a good one which cannot be condemned because an ungenial spring proves fatal to the blossom.

Seven years ago I planted an extensive collection of fruit trees, all of which have been subsequently pinched and pruned in moderation, the condition and progress of each tree being the sole guide and rule in its treatment. The trees were planted well, have grown well, and have borne some fruit, some of them yielding a good deal of excellent fruit in the

third year after planting. In 1875 and the following year most of the trees formed enough blossom buds to give promise of really plentiful crops, but two springs of extreme cold led to almost total failure, very little of the blossom being saved. This year blossom buds are more plentiful than ever, and I hope we may at length be rewarded with an abundant crop of fruit. However this may prove, there stand the trees so full of promise that one feels tempted to enlarge upon the whole of them. To do so would require a series of communications such as I have no time for yet, and it will suffice if my remarks now are confined to the Apples. Most of these are pyramids of an average height of 9 feet, and with a diameter at the bottom also of 9 feet; some are much higher, and some a little smaller. They are planted in pairs for the most part, and some few of the most reliable by dozens. Of the sorts having the blossom buds crowded I may take Old Nonpareil, Manks Codlin, Hawthornden, Fearn's Pippin, New Hawthornden, Nelson Codlin, King of Pippins, Pomme d'Api, Cellini, Duchess of Oldenburgh, Ashmead's Kernel, Barcelona Pearmain, Lord Suffield, Cox's Orange Pippin, Sturmer Pippin, Margil, Wormsley Pippin, Golden Russet, Golden Reinette, Scarlet Nonpareil, Adams' Nonpareil, Ross Nonpareil, Ribston Pippin, Pomona, Boston Russet, and Hubbard's Pearmain. Of others having an abundant crop of bloom buds there are Kedleston Pippin, Small's Admirable, Kerry Pippin, Mère de Ménage, Dumelow's Seedling, Warner's King, Northern Greening, Golden Noble, Bedfordshire Foundling, Tower of Glamia, Hanwell Souring, Rymer, Yorkshire Greening, Court of Wick, Gooseberry, Cobham Apple (this is a regular giant 14 or 15 feet high, yet with plenty of blossom), Lord Burghley, Emperor Alexander, Reinette du Canada, Golden Pippin, Pearson's Plate, Reinette Van Mons, Melon Apple, Cockle Pippin, and Cornish Gillyflower.

I might extend this list still further, but enough variety is given to show that most sorts of Apples by a careful system of pruning and pinching may be rendered perfectly fruitful, and at the same time be brought to such a size as to afford bushels rather than dozens of fruit. There are certainly exceptions. For example, Brabant Bellefleur has very few flowers, Bess Pool though somewhat shy has more, so has Northern Spy; but I may inform "A COUNTRY PARSON" that it is notorious that this variety does not yield full crops of fruit until the trees are upwards of a dozen years old. I may advert to some little trees of Cox's Orange Pippin planted two or three years ago, and now about 5 feet high, with four or five dozen blossom buds on each, and there are some Ribston Pippins equally precocious.—EDWARD LUCKHURST.

AURICULAS AT SLOUGH AND LOXFORD.

ON the day of publication of this issue of the Journal the great gathering together of Auricula growers will be assembled at the Crystal Palace. The plants, or many of them, alluded to in these notes will also be arranged in the central transept of the great building, and before the day closes will have won high honours—at least, if it is not so the quality of other exhibits will be of unexampled superiority.

It is evident by the condition of the Slough and Loxford collections that the Auricula when it is handled by master cultivators is a southern as well as a northern flower. It is, in fact, a flower for all latitudes of Great Britain, and when well tended it will yield greater beauty in less space than perhaps any other flower in cultivation. The two master cultivators in the south of England are undoubtedly Mr. Charles Turner at Slough and Mr. Whitbourn's successful gardener James Douglas at Loxford Hall. At the Palace thousands will be admiring the flowers of those cultivators while thousands more are reading these lines. Such shows as that alluded to are almost indescribably beautiful, but an inspection of the flowers at home enables hints being gathered which cannot be picked up at a public exhibition. It is certain that many, probably many hundreds of visitors, on inspecting the great Auricula Show will ask the twin question, How and where are such beautiful flowers grown? A visit to the homes of their growers affords the best answer to such reasonable and natural inquiries. I will first glance at the collection at

SLOUGH.

This is known as the head-quarters of the finest trade collection of Auriculas in the world, and never have the plants been seen in better condition than during the present flowering season. Mr. Turner's catalogue list of varieties is an extensive one, but it by no means represents all the sorts that are grown in his nursery. So great is the demand for

Auriculas now that as far as possible only those are "listed" of which a reasonable number of plants are provided, and even then the stock of some of the choice, rare, and popular varieties is, to employ a nursery phrase, speedily "run off its legs." On this account Mr. Turner must always meet the more celebrated private growers at a disadvantage in the exhibition hall; for while they can keep and grow to vigorous plants such fine sorts as George Lightbody, Col. Taylor, Admiral Wisbey, Taylor's Glory, and others of that calibre, such celebrities cannot be retained at Slough until they reach their best exhibition form. Still many fine examples of choice Auriculas are represented there, and some which are notable for their free growth and great decorative excellence are in grand condition.

On page 304 Mr. Harrison Weir gave advice that is no doubt theoretically sound. "Have the best varieties," says Mr. Weir, "at starting—those that want most care, and they are sure to be well looked after," such as George Lightbody, a variety which your correspondent justly treasures both on account of its intrinsic value and the source from whence he obtained it. "Happy is he," concludes the great artist, "who grows Auriculas well," to which may be added, Happy is he who can obtain the best at starting.

The two Auriculas at Slough that, perhaps, more than any other varieties strike the genial visitor are two of "Turner's own"—Col. Champneys and Charles J. Perry. Neither of these varieties may be quite up to the orthodox standard of the Auricula connoisseurs, but there is nevertheless no disputing their beauty. The grand character of the grey-edged flower with its smooth pip and violet ground colour, the stately growth of the plant, and its powdered serrated foliage, render it extremely attractive, while the noble truss and the remarkable richness of the self constitute it one of the most imposing, not only of the class to which it belongs, but of all flowers expanding in April. These two Auriculas should be obtained "at starting," because they are certain to give a fine return for any cultural care bestowed on them, and if a little mistake should occur, as mistakes will occur with beginners, the innate vigour of such free growers as these will preserve them from the fate which not occasionally befalls other sorts of more perfect qualities, yet of more delicate mould. But the cultivation of such Auriculas as the pair named should not be limited to "fanciers." The flowers possess a decorative value which should not be overlooked. Where dwarf-growing and beautiful flowers are coveted in the spring as front row greenhouse decorative plants "Champneys and Perry" should be grown by the dozen, for no plants of the same stature can surpass them, and few can equal them in richness of effect. A few others, especially in the self and Alpine classes, are also, perhaps, nearly equally valuable for the same general purposes of floral embellishment.

Many varieties of greater value, judging them from the florist's standard, were admirably represented in the Royal Nursery this spring. Amongst white edges, which are not by any means over-plentiful, a new variety, Omega (Turner), is a flower of great promise, possessing as it does size, form, purity, and richness. In the same section Arabella (Headly) commands attention, as also does Highland Queen, a queenly flower, somewhat resembling yet distinct from and superior to Bright Venus. Heap's Smiling Beauty and Hepworth's True Briton are standard flowers in this section and likely to remain so. Cunningham's John Waterston is a flower of rare beauty, but is a silvery grey rather than a white as seen at Slough. Amongst the green edges Gertrude Knight (Turner), Atlas (Lightbody), Admiral Wisbey (Headly), Smith's John Bright, a fine solid green; Traill's Rev. George Jeans, Oliver's Lovely Ann, Hudson's Apollo, Gain's Lady Richardson, Lord Nelson, and Kaye's Splendour are represented by flowers of rare excellence. Amongst grey-edged varieties Headly's George Lightbody, a small plant at Slough, is certainly one of the finest of Auriculas. Only a little dexterous manipulation is requisite to transform it into a fine green-edged flower, but it is really a grey; and the same may perhaps be said of Alma. Some true florists, however, do not commend such artistic touches, while others of equally high standing adopt them. It appears to be a question of taste. A few other grey edges exceptionally fine at Slough are Alderman Charles Brown (Headly), excellent; Fletcher's Ne Plus Ultra, Lightbody's Richard Headly, and the same raiser's Robert Traill. It is in this section that the sturdy Col. Champneys comes and another striking flower of the same type—Royton's Royal Sovereign, also the grey or green Chapman's Sophia and Campbell's Confidence.

The selfs are represented by many beautiful varieties. The most striking of them all by its rich colour and noble truss is Charles J. Perry above noticed. Although it may possess a slightly faulty tube the flower has grand compensating advantages, and cannot willingly be dispensed with wherever Auriculas are grown. A flower of great merit is Campbell's Pizarro, but plants of this coveted variety cannot be retained at Slough until they reach their full splendour. Martin's Eclipse is bold and striking but the petals are somewhat rough, and the same remark applies to Sims' Vulcan, especially when it is judged in comparison with Turner's Clipper, an undoubtedly fine variety. Smith's Formosa is in excellent condition; it is a distinct and lovely self. Meteor Flag (Lightbody) is very fine and attractive, but is now passing its best condition. Spalding's Metropolitan is in admirable condition; in colour it is midway between C. J. Perry and Formosa, and is one of the most attractive in the section. Of the same type is Gibson's Mrs. Marsden, a grand flower. Mrs. Sturrock (Martin) is vigorous and extremely fine, and very rich and good is Headly's Petronella. A new large seedling self resembling Clipper is also highly promising. The varieties named are only a few of the more striking in this imposing section.

The Alpines yet remain to be noticed. Of these bold and brilliant flowers Mr. Turner is the greatest patron, as he has proved the most prolific raiser, of new and fine varieties. Both shaded and unshaded flowers are admirably represented, and both types are eminently worthy of cultivation both as florists' flowers and general decorative plants. One of the most commanding in this class is Mr. Turner's new variety Mrs. Llewellyn. The truss is remarkable for its size and contour; the centre is pale yellow, and the petals are maroon slightly shaded with violet. It is one of the finest in the collection. Queen Victoria of the same strain is also a splendid flower. Unique is stately in growth and is a shaded plum and violet flower of great merit. Napoleon III., rich yellow centre and maroon petals, is smooth and very fine, but not shaded. Dolly Varden, a shaded maroon and crimson flower, commands notice, as also does Topaz, which is very large and very rich; and Mrs. Thomson, the fine dark maroon flower that was certificated last year; it has a fine centre and is smooth and rich. Slough Rival, a very lively and cheerful flower, is highly worthy of culture. Nonpareil is a superior violet-shaded flower, and must not be overlooked; it is in the way of Elcho but surpasses it. Sensation is rich, smooth, large, and very good. King of the Belgians is one of the richest of Alpines; the flower is of excellent shape, with petals of great substance; colour glossy crimson. Mrs. Dodwell, Philip Frost, Spangle, Sydney, John Leech, and many others are all in excellent condition. These free-growing and striking Alpines are, as Mr. Weir says, good "for starting," and their satisfactory cultivation will lead their owner on to the possession of more delicate floral gems.

It now only remains to be said that these Auriculas, which have been cultivated so well and have been timed so skilfully to be at their best for the 25th inst., have been grown exclusively in frames. They were wintered in a pit and were subsequently removed to cold frames having various aspects suitable for advancing or retarding their flowers. When expanded many are placed under handlights in a shaded place, the pots standing on moist ashes—in fact, all the plants are placed on ashes and not on dry boards. In the north a heated house is probably an advantage for the cultivation of these flowers, and a suitable structure always enables the flowers being displayed to advantage, yet the condition of the collection at Slough affords evidence that a costly glass structure is not indispensable, but that a humble frame, good soil, and attentive cultural care are the only absolute essentials for growing Auriculas well and making their owners happy.

LOXFORD.

The grower of splendid plants, the winner of many prizes, the raiser of some new varieties of sterling merit, Mr. Douglas, has won a foremost place amongst contemporary cultivators of the Auricula. Mr. Whitbourn's is quite the most extensive and choice private collection in the south of England; and the owner of it, by the encouragement he gives to the cultivation of this and other florists' flowers, has done and is doing much to extend and improve their more general culture. This substantial patronage cannot but be highly appreciated by all who are interested in the resuscitation of flowers that have been too long neglected.

As at Slough, so in this well-known Essex garden, no elabo-

rate provision has been made for Auricula growing. The plants are grown in plain garden frames and an equally plain unheated pit. A light span-roofed greenhouse is occasionally utilised by affording accommodation to some of the plants when the flowers are expanding—accommodation, however, which, this year at any rate, has proved of questionable value, for the freshest flowers are in the frames. Allusion has been made to the decorative value of Auriculas. At Loxford their usefulness in this respect is very striking. In the span-roofed greenhouse there was early in this week a group of splendidly grown Auriculas, and in the same structure were equally well grown hard and softwooded greenhouse plants also in flower. In the same garden a small house, filled with cool Orchids in remarkably good health and flowering profusely, was also singularly attractive; but no flowers, judging them by their varied chaste and rich colours, their bold forms and clearly defined lines of beauty, produced such an imposing effect as the Auriculas. This is not the estimation of a specialist—a “one-idea’d” writer, but of one who looks at flowers as flowers, and who, when they are well cultivated, admires them all without prejudice to any.

The Auriculas bear away the palm at Loxford, and yet they have passed the zenith of their beauty—they are (and how disappointing the fact must be to their cultivator) fading on the eve of the great Show. That Mr. Douglas's name will be in the prize list at the Palace is certain; he will stage and stage well there, but not in such “form” as he could have done a week or ten days ago. Some of his best flowers are quite over, others have lost the bright gloss of pristine freshness, but will “just do” for staging; yet others, again, are worthy of Loxford and the Crystal Palace. Let us glance at a few of them. The term, however, is a misnomer as applied to that beautiful Auricula Taylor's Glory, for while the plants were grand a fortnight ago not a flower is now to be seen. The plants are literally “on the shelf” ripening seed which will yield flowers, let us hope, worthy of the parentage. The plants are very luxuriant, and the faded trusses and stout flower stalks tell how fine they have been.

Some others still beautiful are the following:—Kaye's Alexander Meiklejohn, very large, stout, smooth, and richly coloured—certainly one of the finest of the grey edges. Rev. F. D. Horner is another fine and very promising flower; it is almost certain to remain high on the list. Headly's George Lightbody is a very prince in its class, and is remarkably stout and fine. Hepworth's True Briton is admirably represented, as also is Cunningham's Mrs. Campbell, which is singularly pure and chaste. Beeston's Apollo and Hudson's Apollo are both extremely fine, and must be ranked amongst the very best in the green-edged section. Lancashire's Lancashire Hero is one of the finest in the collection, the flowers being large and altogether good. Although classed as a grey it can be made green by those who know how to do it; it is, however, more attractive as it is, the beautiful silvery wire rendering it very artistic. Heap's Smiling Beauty, one of the best of the whites, is in superb condition. The flower is very similar to True Briton, but the foliage in one variety is mealy, the other green. Cunningham's St. Augusta is a large and conspicuous flower, very attractive to the ordinary visitor, but will scarcely charm the educated eye of a real florist. Chapman's Maria is a fine and striking flower, distinct by the rich violet in the petals. Syke's Complete is a dainty gem pure and good, and the same remark applies to Summerscales' Catharina, a flower, however, perhaps more prized in the north than the south. Lady Sale is another good white in excellent condition. In fine contrast is Conqueror of Europe, the flowers being of extraordinary size, but fading. Campbell's Admiral Napier is a green edge of great excellence and admirably grown, and Cunningham's John Waterston deserves honourable mention for its triple possession—form, colour, and purity. Headly's Alderman Wisbey is a superior green flower, and another of Headly's Aldermen, Charles Brown, is of equal merit as a grey; this is, indeed, one of the finest in its class. Lady Sophia Dumaresque is a fair fresh flower, and Smith's Ann Smith is one of the purest in its class. Oliver's Lovely Ann and Gain's Lady Richardson are two fine varieties of darker hue (greens), and McDonald's Miss Arkley is noticeable not only by its attractive white-edged flower, but also by its beautiful mealy foliage. Others to be noticed are the best of all the green edges, Col. Taylor, a bright grass green of rare quality, and a seedling, the result of a cross between Robert Traill and George Lightbody. It is a beautiful silvery grey edge with a remarkably good and pure paste, but appears to be deficient in body

colour. It is a very distinct flower, and clearly reflects the characters of both parents, but whether it will prove worthy of them time and fanciers alone can tell. A parting word must be had on Col. Champneys. The plants and trusses have been grand, and some are good now. At the Palace this striking Auricula is sure to find many admirers.

A few selfs must be briefly referred to. Charles J. Perry is in splendid condition, and not less handsome is Campbell's Marquis of Lorne, a rich crimson flower, one of the best of its colour. Ellen Lancaster, Lord Clyde, and Mrs. Smith are fine varieties well grown; Vulcan is very good, Master Hole better, and Campbell's Pizarro perhaps the best of all; but a good word, a very good one, must be bestowed on Formosa, Topsy, Eliza, Meteor Flag, and Metropolitan, for all are excellent varieties excellently cultivated. Not much space is left for Alpines, not so much as they deserve, for the display of them is a fine one. The trio of seedlings raised at Loxford and certificated last year (Sylvia, Florence, and Prince) are noble flowers. Miss Reid, Beatrice, and Bronze Queen are also highly attractive. One more Alpine must be noticed before summarising—namely, Mr. Barlow's new variety Annie. This is a flower of much promise; it is very distinct, the ground colour being maroon purple shaded with very pale purple. It is of excellent form, and will take a good position in its class.

Now comes the summary of the best varieties at Loxford, or at least sorts that those commencing the cultivation of Auriculas can scarcely err in obtaining. Only half a dozen are selected in each section, and they are placed as well as possible in the order of merit.

Green-edged.—Col. Taylor, Page's Champion, Traill's Anna, Beeston's Apollo, Hudson's Apollo, and Admiral Napier.

Grey-edged.—George Lightbody, Alexander Meiklejohn, Alderman Charles E. Brown, Chapman's Maria, Robert Traill, and Col. Champneys.

White-edged.—Smiling Beauty, Taylor's Glory, Ann Smith, True Briton, John Waterston, and Ne Plus Ultra.

Selfs.—Pizarro, Charles J. Perry, Duke of Argyle, Topsy, Ellen Lancaster, and Formosa.

Alpines.—Diadem, Bronze Queen, Queen Victoria, Beatrice, Florence, and John Leech.

Small pots, thorough drainage, early potting, rich turfy loam, cold frames, and pure water (no liquid manure), are Mr. Douglas's landmarks of culture. Means more simple can scarcely be conceived, and results more satisfactory can hardly be desired.—J. W.

ROYAL BOTANIC SOCIETY.

APRIL 24TH.

As a minor Exhibition this was one of the best that we have seen arranged in the corridor and conservatory at this period of the year. The classes were well filled, and the nurserymen's groups—stove and greenhouse plants from Messrs. Rolleston and Cutbush, Roses from Messrs. Veitch, G. Paul & Son, and W. Paul and Son; choice ornamental plants from Mr. Williams; Azaleas from Mr. Turner, and Orchids from F. Philbrick, Esq., Q.C. (Mr. Heims, gardener)—were excellent. These collections, for which extra prizes were awarded, constituted the most important feature of the Exhibition, and were greatly admired by the visitors.

For twelve stove and greenhouse plants in flower in 12-inch pots Mr. Wheeler, gardener to Sir F. H. Goldsmid, Bart., Regent's Park, was awarded the first prize for very fair examples of *Imanophyllum miniatum*, *Azaleas Criterion* and *Iveryana*, *Ericas Victoria* and *Coccinea minor*, *Lycaste Skinneri*, *Odontoglossums Andersonianum* and *luteo-purpureum*, *Cypripediums villosum* and *caudatum roseum*, *Franciscea eximea*, and *Eriostemon densiflorum*. Mr. W. Roberts, gardener to W. J. Terry, Esq., Peterborough House, Fulham, was a very good second, having amongst others very well-bloomed plants of *Cattleya Skinneri*, *Odontoglossum Pescatorei*, and *Dendrobium chrysotoxum*. An extra prize was awarded to Mr. Joseph Bristowe, gardener to G. Campbell, Esq., Wood Fell, South Dulwich, for three large greenhouse plants and exceedingly well flowered. In the class for six Cape Heaths Mr. Wheeler was the only exhibitor, and was awarded the first prize.

In the nurserymen's class for nine Roses in pots Messrs. Paul and Son, Cheshunt, were the only exhibitors, and were worthily awarded the first prize for grand examples of *Souvenir d'Elise*, *Camille Bernardin*, *Cheshunt Hybrid*, *Perfection de Montplaisir*, *Marquise de Castellane*, *Dupuy Jamain*, *Madame Lacharme*, *La France*, and *Victor Verdier*, the plants carrying on an average fifty blooms each, and were excellent both in quality of flower and foliage. In the amateurs' class for six plants Mr. James, gar-

dener to W. F. Watson, Esq., Isleworth, was placed first with fair examples of Edward Morren, Elie Morel, La France, John Hopper, Souvenir d'un Ami, and Marquise de Castellane; and Mr. Bristowe third for some ugly standards. For six new Roses sent out in 1876 and 1877 Messrs. Paul & Son, Cheshunt, were the only exhibitors and received the first prize with Monsieur G. Tournier, Madame de Montchaveau, Duke of Connaught, Emily Laxton, Madame Baronne de Medin—all Hybrid Perpetuals, and Comtesse Riza du Parc, a rosy salmon-tinted Tea Rose.

A few of the more notable Roses exhibited were Duchesse de Vallombrosa, Souvenir d'un Ami, Mdle. Marie Finger, Madame Willermoz, La France, and Cheshunt Hybrid from Messrs. G. Paul & Son, and principally grown in 10-inch pots, a size very suitable for spring-exhibiting purposes; and in Messrs. W. Paul and Son's extensive collection Marie Van Houtte, Jean Goujon, Souvenir de la Malmaison, Magna Charta, Capitaine Christy, Fisher Holmes, and Duke of Edinburgh were the most noteworthy. In the collection of Messrs. Veitch & Sons Madame Willermoz and Madame de St. Joseph were very conspicuous. This firm also exhibited over forty exceedingly well-bloomed Clematises, Rhododendrons, Ghent Azaleas, three baskets of Gentiana acaulis, interspersed with *Acer polymorphum palmatifidum*, the whole forming a very effective group.

Azaleas were exhibited by Mr. Ratty, gardener to R. Thornton, Esq., The Hoo, Sydenham; Mr. James and Mr. Bristowe, who all staged very good collections, and the prizes were awarded in the order named. Mr. Turner, Slough, was the only exhibitor of Azaleas in the class for nurserymen, and was deservedly awarded the first prize. Cinerarias came from Mr. James, who was a good first with nine well-flowered examples; and Mr. J. Levesley, who was placed second with smaller plants. Mr. Ratty had the third prize. Mr. Knowles, gardener to H. Little, Esq., was the only exhibitor of Amaryllises, and received the first prize with Princess Dagmar, Olga, International, Rupert, Fairstar, and Mdle. Titiens. For nine Pelargoniums (open) Mr. James was the only exhibitor, and staged an exceedingly neat collection, principally fancies, for which a first prize was worthily awarded. The best collection of bulbous plants came from Mr. Roberts, who was awarded the first prize; and the awards for collections of Alpine plants went to Messrs. Roberts and Wheeler in the order named. Mr. Turner won the first prize in the class for twelve Auriculas, and Mr. Roberts was first in the class for six plants.

Mr. Walker, nurseryman, Thame, Oxon, sent three boxes of cut blooms of Roses, one box containing extraordinarily fine examples of Maréchal Niel, also a box of cut blooms of Geraniums and Anemones, for which an extra prize was awarded. Extra prizes were also awarded to Mr. Hooper, Vine Nursery, Bath, for a collection of Pansies; to Mr. Wheeler for a collection of plants; to Mr. Levesley, Isleworth, for Cinerarias; and to Mr. Ratty for a specimen Azalea.

Botanical certificates of merit were awarded to Messrs. Veitch and Son for *Adiantum Lawsonianum*, with finely and triangularly cut pinnae; for *Hæmanthus Kalbreyeri*, a very curious plant with scarlet flowers, the stamens and pistil of the same colour are even more conspicuous than the petals themselves; for *Dioscorea retusa*, a pretty trailing plant with Ivy-like leaves and drooping catkins; for *Rhipidoptera peltata gracillima*, a much finer cut variety than *R. peltata*, and for *Lastrea aristata variegata*; to Mr. B. S. Williams for *Dracæna Bausei*, Mrs. Bause, and Renardæ, also for *Ixora hybrida*, *Wallichia zebrina*, and *Glomeria jasminiflora*; to Messrs. Rollison & Sons for *Grevillea filicifolia*; to Mr. Turner, Slough, for Azalea M. Lefebvre; to Messrs. Paul & Son, Cheshunt, for H.P. Rose Mrs. Laxton; to W. Paul & Son for Rose Boieldieu; to Mr. Hooper for Pansy Frederick Perkins; and to Mr. G. Smith, Edmonton, for Gold-laced Polyanthus Admiral Hornby.

The weather during the earlier part of the day was especially unfavourable for visitors, and rain, more or less, continued until late in the afternoon, when a favourable change occurred, and a considerable company assembled to enjoy the Exhibition.

ANNUALS.

ANNUALS are everybody's flowers, but everybody who sows them does not grow them. Too often with the sowing of the seed the work of the cultivator ends, or nearly so; the plants are left unthinned to grow, or rather to kill themselves. They are worthy of a better fate, for annuals have a beauty of their own if it is permitted to be seen to its best advantage. The airy lightness of growth of many of these summer flowers constitutes one of their chief charms. When grown and grouped thinly their attractions are not only considerably enhanced, but are continued over a period thrice as long as when crowded so that neither light nor air can reach the interior of the plants. There is little more reason in sowing beds of annuals and permitting the plants to grow unthinned than in sowing beds of Lettuces and allowing the crop to grow in the same irrational manner. Types of two familiar annuals are represented in the

accompanying engraving (fig. 48). When thus seen in all their gracefulness none can dispute the beauty of these deservedly popular flowers, *Rhodanthes* and *Nemophilas*.

Rhodanthes are among the most admired of Everlastings. When well grown in pots they produce a charming display during the spring and early summer months. In the great exhibition of annuals arranged last year in the Royal Botanic Society's Gardens at Regent's Park by Messrs. James Carter and Co. none produced a more pleasing effect than the *Rhodanthes*, and thousands of pots of them are admirably grown for Covent Garden Market and for the adornment of metropolitan homes. All the varieties of these Everlastings are worthy of culture, and perhaps none more so than the old *R. Manglesii*; but the one figured, *R. maculata grandiflora*, is larger; and *R. Prince Bismarck*, which was prominent in the exhibition referred to, is richer; *R. atrosanguinea* is also, as its name implies, a very high-coloured variety, and for contrast we have the pure white variety *R. Manglesii alba*. The plants are usually grown and flowered in 5-inch pots. The seed is sown thinly in a compost of turfy loam and peat, and the plants are grown near the glass in light cool frames. The plants are thinned out to not less than an inch apart, and are treated much the same as *Mignonette*. There is only one important point that must be attended to in the culture of *Rhodanthes* in pots, and that is they must be watered with great care. Unlike the majority of plants they do not flourish well if the foliage is sprinkled, and it is generally better not to water the seed pots with a rosed watering pot, but the water should be applied carefully to the surface of the soil and underneath the foliage. By this simple precaution healthy foliage may be produced, which contributes so much to the attractiveness of the plants. If the plants are freely and frequently watered overhead much of the foliage decays, and the plants as a consequence are deficient in vigour, and their beauty is not only impaired but is much more transient than it would be if the plants were more healthily grown. Although the seed is sown in a compost of turfy loam and peat the lower half of the pots is filled with richer soil, of which decayed manure forms a considerable part—nearly or quite half, and the plants by rooting freely in this become luxuriant, producing good foliage and large and brightly coloured flowers. Not only are *Rhodanthes* in pots valuable for conservatory embellishment, but the flowers are particularly suitable for bouquets and vase decoration. The present is a good time for sowing the seed for a summer display; for producing plants for flowering in early spring the seeds must be sown in the autumn.

Nemophilas like *Rhodanthes* are both popular and pleasing. Amongst trailing annuals few are more extensively grown than these. Their colours are very varied, ranging from pure white through the different shades of lilacs to bright corulean blue, and even in the variety represented, *N. discoidalis*, almost to a glossy velvety black; but the most popular of all is the old and beautiful *N. insignis*. A dry and shallow soil this favourite annual cannot endure. It requires deep rich soil, and then if the plants are well thinned out so that each can produce side branches freely, and if the summer should prove a dripping one, the plants will continue growing and flowering quite through the season. In the ducal garden at Drumlannrig we have seen masses of corulean loveliness produced by this simple flower such as no other low-growing plant could produce. The seed cannot be sown too early; indeed in dry districts the best displays are produced by seed sown in the autumn.

At the present period for sowing seed of hardy annuals the merits of one of the loveliest of them all may be referred to—namely, *Ionopsisidium acaule*. The firm above referred to grew last year many thousand pots of this dwarf chaste annual, and the marginal lines of it were much admired both at the exhibitions at South Kensington and at Regent's Park. The seed was sown in April, and the plants were subsequently pricked-off into 4 and 5-inch pots, and produced floral cushions only a few inches in height and densely covered with small pale pink flowers. Rich soil and copious supplies of water are the essentials for growing this small yet charming annual successfully.

Another annual of low cushion-like growth, which is quite imposing when grown in masses, is *Saponaria calabrica*. Beds of this annual, covered with thousands of rich pink cruciferous flowers, are surpassed by few other flower beds during the summer and autumn months. This is emphatically a bedding annual, and as such it is worthy of being grown wherever a dwarf dense mass of pink is coveted. The seed should be

sown now where the plants are intended to flower, or the plants may be raised in a reserve bed and be transplanted in showery weather.

It may be reasonable to direct attention to a few other annuals adapted for bedding purposes—*i.e.*, those which not only produce bright masses of flowers, but which continue in beauty for a great length of time. The best pink bedding annual has been mentioned; the best for matching it as a scarlet is *Tropæolum King of Tom Thumbs*. This when procured true and grown well equals in effect scarlet *Geraniums*. The seed may be sown now where the plants are to remain, or, if

more convenient, they may be raised in the reserve garden and subsequently transplanted. A great advantage in connection with this bright annual is that slugs seldom or never eat the young plants. Another slug-resisting annual, and valuable as a bedding plant, is the dwarf *Convolvulus*; the best variety for a bed is *C. minor* var. *tricolor*. The flowers are rather small but extremely rich, and if the plants are grown rather thinly in rich soil they continue flowering for three or four months. Than a bed of this variety of *Convolvulus* few are more beautiful during the summer and autumn months; the flowers also keep well when cut and arranged in vases, and



Fig. 48.—RHODANTHE MACULATA AND NEMOPHILA DISCOIDALIS.

on this account are worthy of being grown in all gardens. For producing a yellow bed of a lasting quality *Tagetes signata pumila* is perhaps the best annual, but *Sanvitalia procumbens* is also free, bright, and continuous. The seed of these plants should either be sown in pots or in very rich light soil in a sheltered position in the garden, the plants being subsequently transplanted in their blooming quarters. The most lasting of white-flowered annuals of dwarf close habit is the white variety of *Saponaria calabrica*. Every year there are owners of gardens and lovers of flowers who desire to have distinct masses of colour in their beds, but who are unable to produce them by the orthodox bedding plants, hence a few annuals are named as substitutes, and which are certain to

give satisfaction if they are properly cultivated. By sowing seed of the annuals named it is quite easy to have beds of white, pink, purple, scarlet, and yellow. More than that cannot be produced by bedding plants that are increased by cuttings and raised under glass. A rich crimson bed may be had by sowing seed of *Linum grandiflorum rubrum*, but its beauty will not be lasting unless the seed pods are removed as the flowers fade. Another annual producing a glowing effect either in pots or beds is *Godetia Lady Albemarle*. When obtained true this is a very brilliant annual, but it is somewhat sportive, and should be grown rather closely until the flowers appear, when the inferior varieties can be weeded out.

Many more annuals are eminently worthy of culture, the

few named being selected on account of their special usefulness for particular purposes of decoration in the garden or greenhouse. Let them be grown thinly in rich soil; indeed, give them a chance to develop their characters and unfold their beauty, and they will not disappoint.

FLOWER SHOW AT EDINBURGH.

As was stated last week the Royal Caledonian Horticultural Society's Exhibition that was held at Edinburgh on the 10th inst. was both extensive and successful. Not a little of that success was due to the manner in which the collections of plants were arranged and the ample means that were afforded the visitors for inspecting them conveniently and advantageously. Frequently flower shows are either too crowded or too formal to be fully enjoyed—a result often unavoidable on account of the limited extent of the building in which the

exhibition is held. At Edinburgh the Flower Show Committee had an edifice at their command of unusual magnitude, and it is only justice to add that the taste of the managers of the Show was equal to the space at their disposal. They had ample scope and excellent material: hence the Exhibition was so eminently enjoyable. That the display was an imposing one is evident from a photograph which has been forwarded to us, and which we have had engraved. The Waverley Market is 336 feet long and, including the side galleries, 150 feet wide; the galleries, however, were not occupied, but the area of the building presented a remarkably attractive appearance. Much taste, says the authority from which we quoted last week, was displayed by the Committee and the active convener, Mr. David Mitchell, in the arrangement of the exhibits in the hall, and the general idea of an immense tropical garden was happily realised. The scene from the galleries was exceedingly fine—the gorgeous masses of blossom being relieved by the



Fig. 49.—FLOWER SHOW IN THE WAVERLEY MARKET, EDINBURGH.

cool greenery of the foliaged plants. Visitors, when tired of inspecting the many-hued floral gems set on the admirably arranged tables, found a new pleasure in promenading down the long avenues of waving Palms and feathery Tree Ferns, or, from the miniature Pine grove at the west end of the market, admiring the beautiful vista and the ever-moving groups. Round the colonnade in the centre of the hall were a series of broad tables, which were furnished by the prominent nurserymen and florists of the city. North and south of this were long lines of Palms, Tree Ferns, and Cycads, contributed by Professor Balfour, Regius Keeper of the Botanic Gardens, and Mr. James Cowan, Rosshall, near Glasgow. The latter collection was awarded the silver cup presented by Mr. David Mitchell, landscape gardener and estate agent, Comely Bank. North and south of the avenues were a series of tables, 40 feet long by 6 broad, on which were arranged with good effect the plants forwarded for competition, and on the south side was another row of tables containing flowering shrubs, the broad space between being broken up by a line of large Hollies and other hardy evergreens. The whole garden was enclosed, so to speak, with lines of splendid fruit trees—with the exception of the semicircular bay at the west end, which was occupied by the collections of Coniferae from the nurseries of the Lawson Seed Company and Messrs. Thomas Methven & Sons. In the former collection, which was awarded a special prize, there

were no fewer than 160 species and varieties of the Pine, and arboriculturists, who spent the greater part of the forenoon in studying the trees, confessed that they had never seen a more interesting group. Pendant from the cross beams overhead were large baskets containing trailing plants. When lighted up in the evening the hall presented a scene of oriental magnificence and rich harmonious colouring. It is gratifying to observe that the municipal authorities of the city gave their influential aid and co-operation in rendering the event so successful, and we should be glad if such an alliance of the horticulture of the district with the official central head of the town could be effected throughout Her Majesty's dominions. Town and country would alike be benefited thereby, and an art which contributes so much to the welfare and industry of the nation would be promoted. We congratulate our northern friends on the happy result of their labours, and we trust that we may have to speak approvingly of still greater gatherings of the same nature.

RASPBERRY AND AURICULA CULTURE.

MORE than fifty years ago my father formed a plantation of Raspberries, and ever since they were established they have borne large crops of very fine fruit, larger and finer than one ever sees in the London market. Many of the stools—perhaps

all—have been renewed, but the soil has never been changed. In my father's time the ground was never dug, but received an annual dressing of cow dung and coal ashes. The situation is cold and damp, the soil being strong loam.

My father was a successful *Auricula* grower. The plants were wintered in a cold pit, air being given at all times, except during severe frost. The glass was never covered even in the severest weather. When the first flowers commenced expanding in spring all the plants were removed to a little wooden structure open to the north-east; the roof projected about 18 inches over the front to throw off wet. In this cool position they remained in bloom a long time. My father was the raiser of that sweet little gem, *Miss Arkley*.—*CAMPDEN HILL*.

DIGGING AND MANURING.

MR. WILLIAM TAYLOR is evidently one of those gardeners who thinks for himself and has the courage of acting on his convictions, and also, which is of greater general benefit, of publishing them, even if they interfere somewhat with established notions. I have often thought that too much importance is attached to autumn manuring and winter digging. For years I have adopted the practice referred to, but generally as a matter of expediency. It was felt necessary to have as much ground as possible dug in late autumn and early winter, in order to facilitate work in the spring, which often presses so powerfully at that time. I have for a long time regarded that as the most important object of winter digging—the improvement of the land being considered as secondary.

Useful practical hints on land management may often be derived from intelligent kitchen-garden labourers. It was from an observant worker—a real “son of toil,” and successful in his calling, that I first received lessons on digging and manuring. The hints imparted to me were of precisely the same nature as those conveyed by Mr. Taylor on page 275. Both in dealing with heavy and light land I was taught that the practice of winter exposure was greatly overestimated. In the case of very strong land it was pointed out that two months of exposure of the soil during the hot sun and drying winds of summer was more effectual in promoting pulverisation than four months of exposure to the frosts and rains of winter. In proof of that the practice of the farmers in the neighbourhood was adduced, who could not reduce the soil to a cultivable state without “summer fallowing.” I have since found the principle to be sound when it has been applied to heavy ground in garden practice.

In the case of light soil the objection of my humble yet essentially practical tutor to manuring and digging in late autumn or early winter was based on the principle that the “nature” of the land was “washed out” by the winter rains. This idea may perhaps provoke a smile from semi-scientific, or rather pseudo-scientific, cultivators, but nevertheless there is much truth in it. At any rate my friend—for friend he was, and a near one too—had the courage of his convictions, and not once during a period of fifty years was his large garden of nearly an acre manured and dug in the autumn. So convinced was he that the practice of winter digging and manuring was not profitable in the moderately light soil of his garden, that I have many times heard him assert that if anyone would do the work for nothing in the autumn he would not have it done. Certain it is, it never was dug and manured until the spring, and equally certain is it that the soil increased rather than decreased in fertility after half a century of cropping.

The above represents the teaching imparted by an old tutor to a youthful pupil. Eventually the youth became a man, or rather arrived at that period of life when he had a strong opinion that he had attained to manhood. That particular feeling generally occurs shortly before a youth is out of his teens. I had then been gathering knowledge in fashionable gardens in distant counties, and had received new ideas from fashionable gardeners. I had also fortified myself with book knowledge, and had begun to talk rather freely of oxygen, nitrogen, &c., also on the absorbent nature of soils—indeed at that period I had a self-consciousness of knowing much about science and chemistry; but now, after many years of practice and of reading I confess to knowing very little indeed about those matters, but I know that the practice of spring digging and manuring light soils is right.

My first lesson was learned in this wise. I returned home full of science and self-conceit, and denounced the veteran's practice as wrong. Like a sensible man he did not attempt to argue the point with me, but (it was in the autumn) forthwith

placed several barrowfuls of manure in the middle of the garden. This he requested me to spread and dig-in. I dug it in deeply and formed the surface of the ground into ridges, and thus it was left through the winter. Towards the end of April or first week in May the garden was manured, dug, and planted as usual with Potatoes, the winter-dug portion having the ridges levelled-down and planted at the same time, but without any additional manure. I expected a great triumph, but instead sustained a crushing defeat. The autumn-dug square was visible throughout the growing season by the paler hue of the Potato haulm, and in the autumn was notorious for small Potatoes. That was a practical lesson that I have never forgotten. The difference so plainly shown by the two systems of management was not to be explained away, and I was driven to accept the fact that a portion at least of the virtues of manure can be washed into the subsoil and drains by long exposure of manured soil to the rains of winter.

Someone (Mr. Abbey, I think) has recommended the digging of ground in autumn without manure, and adding the enriching materials in spring, to be forked into the ground when dry at the time of cropping. I believe that in the case of many soils and crops, perhaps most, to be excellent practice and more economical—hence profitable, than applying the manure in the autumn.

Another matter worthy of attention that Mr. Taylor has mooted is having regard to the temperature of the soil at the time of digging. It is pretty generally admitted that it is bad practice to dig the ground during snow or in frosty weather, and very little of such work is done by those who read as well as work; but advantage is not taken to such a great extent as it might be of burying sun heat, and so warming the soil in the early days of summer. I have found the advantage of lightly turning over flower beds as often as the surface of the soil has become warmed by the sun by having thus raised the temperature of the soil very considerably before the time of planting the beds with tender plants. During sunny days in May it is not unusual to find the surface of the soil heated to 85° at mid-day, while on the following morning it is crisp with frost. Surely it is more advisable to turn the surface over and bury the heat than to permit 50° a day to escape by radiation. In securing early crops and in promoting the speedy establishment of tender plants the practice of digging in spring, when the surface of the ground is dry and many degrees warmer than the soil beneath, is a matter of considerable importance, as I think those will find out who practise it, say, in the case of a few beds intended to be planted with choice and tender flowers.—A NORTHERN GARDENER.

BOUVARDIA CULTURE.

THE few remarks on the culture of *Bouvardias* by “A SOUTHERN GROWER” at page 277 I think very good in some points, but I cannot agree entirely with the practice there detailed. In the first place I never increase my stock by cuttings from the young shoots, but by root cuttings in the following way.

When the plants have ceased flowering I cut them back close, gradually dry them off, and place them under the stage in a greenhouse or any other warm place where they can be kept free from drip. Then about the end of March I take a plant of each sort or more according to the quantity of stock I wish to raise, and wash all the soil away from the roots. I then select roots of about the size round of a hair pin or a shade less, and cut these up into pieces about $\frac{1}{4}$ -inch lengths, and place them rather thickly in a shallow box or pan filled with sand and covered very lightly. These pots are watered so as to wet the whole of the sand, and are then placed in a bottom heat of 75°. the atmosphere of the house being as near 60° as possible. No bellglass or shading is required, and not much water until the shoots begin to push up through the sand, and then they must be kept in a moist state. The young plants are potted off when they are 2 inches high or even a little less, as if they remain in the sand too long after they have made roots it will lessen the vitality of the plants considerably.

This mode of propagating the *Bouvardia* is far superior to that commonly adopted by taking off the young shoots, and the advantage is greater in all points. You can increase your stock more rapidly and produce finer plants, in fact there is as much difference in the growth as there is between a seedling *Geranium* and one struck from a cutting. When I have taken off all the roots I require from the old plants I pot them in as

small pots as possible, using rich soil, and plunge them in brisk heat, and they soon break strongly; but of course those that have been robbed of some of their roots will not be quite so good as the others, but I wash the soil away from the roots whether I want any root cuttings or not.

The plan described by "A SOUTHERN GROWER" of planting the *Bouvardias* out in a frame is very good, but I prefer planting them out in the open ground, that is if a sheltered and warm situation can be obtained. I plant them out 1 foot apart each way, and keep them well hoed and pinched back until the end of August, and then take them up carefully and plant them out on a bench in the greenhouse in about 1 foot of soil. By this method twice the number of flowers are produced, as the roots can be kept at a more even temperature. I think with your correspondent that from 60° to 65° at night a very good temperature, as the flowers do not come so fine nor last so long after being cut if they have been grown in more heat.

As regards the different sorts I have not much choice, as I think them all very good; but I give preference to *B. Vreelandii* as being the most free bloomer of the white sorts.—W. B.

HOUSE SEWAGE.

I HAVE from 1864 adopted the following inexpensive plan of draining and utilising house sewage by sub-irrigation. Drainage from the house is conducted by 6-inch brown stone-ware pipes in connection with the cesspool in the garden at the bottom of a steep incline. The cesspool is about 10 feet deep and 5 or 6 feet in diameter. Overflow pipes are laid about 18 inches from the top of the cesspool or at the level of the sewage, and from them adjoining are laid common drain pipes with bends or elbows to turn the corners at the end of each row of these pipes, which are laid in lines about 6 feet apart. These pipes are not cemented together, but simply laid end to end, so that the sewage as it passes through may be allowed to flow out of each pipe into the surrounding soil. They are laid at the depth of about 16 inches under the surface, so that the spade in digging does not disturb them. They have generally worked free about twelve months before they required to be taken up and cleansed from deposit, chiefly of earth washed into them by the rain through the joints. There is seldom any need of taking up more than two in every eight pipes, and a cane or length of iron hooping and flushing will cleanse the others without disturbing them. The rainfall on the roof of my house, of considerable dimensions, is conducted by pipes into the rain-water tanks, and the overflow of the tanks flushes the sewage drains from the house into the sewage tanks. The whole of the sewage is thus diluted with the rainfall from the surface of the roof, and there is great benefit to the vegetation without any nuisance; the soil when dug up is free from any sewage smell. This plan I prefer to the dry earth system, especially if carried out on the desiccation plan, or the expense of the A B C disinfecting materials. The sewage from the lodge and stables on a dead level is conducted from the sewage tank in a similar way into my garden round the borders about 18 to 20 inches beneath the ground, beds and grass plat, and in the drought of summer the grass shows greener where the pipes conduct it, and is burnt up at other places too distant from the sewage pipes. Thus the valuable portion of sewage, such as ammonia and its constituents in combination with phosphates and urates, esteemed for their stimulating properties in the growth of plants, is retained and used at less cost than the purchase of guano. The sewage tanks have not required to be emptied, and I expect never will, or for a long time, as all but sand will there be rendered soluble in time and pass into the ground; earth is a well-known deodoriser of sewage. In this system the sewage is distributed over a filter bed of 30 to 50 feet depth of earth before it can touch the springs in this district. A cottage having 20 square feet of garden ground of good light soil may thus utilise the sewage with much benefit to the ground, and no nuisance or fear of infectious fevers.—TWELVE YEARS' EXPERIENCE.

ANTS AND APHIDES.

THOUGH rather late in the field I would fain add to the notes already contributed by several correspondents a few sentences which may help towards a better understanding of the relation in which the above insects stand to each other, though there is and will be some obscurity remaining until

we have more entomological observers amongst our gardeners. Leaving for the moment the question as to whether ants, considered apart from their aphid-pursuing tendencies, are to be deemed hostile insects to horticultural pursuits, I will grant that there is no doubt that ants do carry to their nests and try to nurture there small colonies of aphides; but in so doing it is not probable that they much assist to increase in number these familiar pests. On the other hand, it has been proved that in some instances the ants have starved their prisoners, perhaps by accident, while ants of several species have been seen in the act of devouring juvenile aphides at large, hence we may presume they do so in their nests. Why should they not? They, like ourselves, need feel no scruples about milking their cows and also occasionally killing and eating their calves. Mr. Iggulden has pointed out a circumstance often overlooked, that ants pay visits to parties of cocci as well as to aphides, and of course it is from the like interested motives. If, indeed, it could be proved, as has been suggested by some theorists, that the honeydew or aphid secretion has a pernicious effect upon the leaves or stems of plants, then we ought to be grateful to ants, for they clear off a good deal of this substance. It is likely that the larger species of ants are the most inclined to play the carnivorous part, though the little ants so common in gardens and houses may be seen trailing along many insects living or dead.

Certainly the gardener is justified in adopting means to prevent the ants from multiplying largely, by effecting the occasional destruction of their nests, or by immolating them through sugary traps. They will haunt flowers at times in an unpleasant way, though even these they do not visit for the honey solely, but to seize upon minute insects. As a rule ants do not gnaw the petals, nor attack leaf or flower buds, and it is very supposable they may help to convey pollen from plant to plant.—J. R. S. C.

HOT WATER FOR PLANTS.

M. WILLERMOZ, in the French "Journal of the Society of Practical Horticulture," relates that plants in pots may be treated with hot water when out of health, the usual remedy for which has been repotting. He says when ill health ensues from acid substances contained or generated in the soil, and this is absorbed by the roots, it acts as a poison. The small roots are withered and cease their action, consequently the upper and younger shoots of the plant turn yellow, and the spots with which the leaves are covered indicate their morbid state. In such cases the usual remedy is to transplant into fresh soil, clean the pots carefully, secure good drainage, and often with the best results. But the experience of several years has proved with him the unfailing efficacy of the simpler treatment, which consists of watering abundantly with hot water at a temperature of about 145° Fahrenheit, having previously stirred the soil of the pots so far as might be done without injury to the roots. Water is then given until it runs freely from the pots. In his experiments the water first came out clear, afterwards it was sensibly tinged with brown, and gave an appreciable acid reaction. After this thorough washing the pots were kept warm. Next day the leaves of two *Ficus elastica* so treated ceased to droop, the spread of black spots on the leaves was arrested, and three days afterwards instead of dying the plants had recovered their normal look of health. Very soon they made new roots, immediately followed by vigorous growth.

NOTES AND GLEANINGS.

IN accordance with the newly issued regulations authorising the OPENING OF KEW GARDENS at ten o'clock in the morning on bank holidays, a considerable number of visitors availed themselves of the privilege during the forenoon of Easter Monday. A far greater number, however, entered the gardens during the afternoon when the weather was finer than in the morning. On days other than those named the gates will be opened to the public at the usual hour of one o'clock, gardeners and students in quest of information having access previously to that hour on application at the lodge near the chief entrance.

THE COOL ORCHID HOUSE at Loxford is now extremely attractive, principally with *Odontoglossums* and *Masdevallias*. Amongst the several varieties of *O. Alexandræ* we notice one of especial merit, the flowers being large and well formed and suffused with lilac. *O. cirrheum* is flowering with great

freedom, one variety now expanding being exceedingly fine; it promises to equal the richly and clearly spotted variety recently exhibited at South Kensington by Mr. Ollerhead. *O. Andersonianum* has a spike showing twenty-six flowers. The plants are in excellent health, and are mentioned because no fire heat is employed, nor was it employed in the winter unless the temperature fell below 45°. Since these beautiful flowers can be grown so well and so cheaply their cultivation ought to extend to many gardens which are destitute of them at the present time.

— THE NUMBER OF VISITORS who paid 2d. each for admission to the gardens of the Royal Horticultural Society at South Kensington on Easter Monday, were 6792, equal to £56 12s.

— THE approach to Mr. TURNER'S NURSERIES at Slough is now made extremely bright and cheerful by spring flowers. Wallflowers are in full beauty, as also are red and white Daisies, which have been planted by thousands. Early yellow *Violas* also contribute much to the floral display and contrast admirably with the purple *Aubrietia*, which is so valuable for early spring decoration. Many beds are planted with later-flowering *Pansies*, which will link the earliest flowers of spring with the summer bedding plants, and thus the display which commenced in March will be sustained throughout the season.

— DURING the festival of Easter many of the LONDON CHURCHES were extensively and tastefully decorated with flowers. Such flowers as *Rhododendrons*, *Roses*, *Camellias*, *Azaleas*, *Callas*, &c., when associated with wreaths of evergreens and formed into artistic devices, have an extremely pretty effect. The decorations at Easter if less extensive are more attractive than those at Christmas, and they are at the least equally appropriate. The custom referred to is gradually spreading in country districts, and in a few years will probably become general throughout the kingdom.

— OUR Poet Laureate, making an appeal to spring, writes thus in "In Memoriam":—

"Bring Orchis, bring the Foxglove's spire,
The little Speedwell's darling blue,
Deep Tulips dashed with fury dew,
Laburnums dropping wells of fire."

There are several species of *Orchis* that flower early; and the *Speedwell* intended is without doubt the *Germander Speedwell* (*Veronica Chamædrys*), which is a true spring flower. The *Tulip* and *Laburnum* are also appropriate to the season, but the *Foxglove* seems to come in out of place, for it is not in these southern districts to be detected in bloom much before July; and on the presumption that the poet was thinking of his Lincolnshire home-surroundings it might be thought the plant would be even later.—J. R. S. C.

— THE TULIPS at Messrs. Carter & Co.'s Forest Hill Nursery are now blooming. There are about fifty thousand bulbs of the finest varieties in the beds.

— IT is a long time since we witnessed such a profuse display of BLOSSOM IN THE CHERRY ORCHARDS of Kent and Buckinghamshire, and in other districts the trees are probably similarly beautiful. In the distance the orchards are masses of purity resembling mountains of snow, and, weather permitting, extraordinary crops of fruit must follow. The common lands also where Gorse prevails are brilliant with myriads of golden flowers, and the general aspect of the country smiles with beauty. This is emphatically the Eastertide of Nature—the great annual resurrection of flowers.

— AN American contemporary states that in consequence of the recent outbreak of *PHYLLXERA VASTATRIX* in Victoria, the Government of South Australia have decided to strictly prohibit the importation of Vines, Vine cuttings, Vine leaves, and Grapes. Arrangements have also been made for seizing fruit that may come to Adelaide packed in Vine leaves.

— STARCH IN PLANTS.—Botanists have hitherto held that all the starch in the chlorophyll cells of the leaves of plants is a product of the direct assimilation of carbon dioxide and water, basing this belief on the fact that the starch in these cells disappears when the plants are deprived of the power of assimilating carbon dioxide, but re-appears on their exposure to light in an atmosphere containing that substance. Professor Bohn of Vienna, in a recent number of the "Deut. chem. Ber.," throws some doubt on this conclusion by experiments he has made on the leaves of the Scarlet Runner. His results show that if the primordial leaves of this plant are shaded from light the starch at first entirely disappears; after

a few weeks, however, the chlorophyll cells of these shaded leaves show almost as high a per-centage of starch as the parts of the plant which have been exposed to light. These observations demonstrate therefore that starch can be formed in the leaves from matter which has already been assimilated and has entered into the leaf after its removal from the sunlight.—(Nature.)

WORK FOR THE WEEK.

KITCHEN GARDEN.

STRICT attention is necessary to prevent injury to seed crops just appearing above ground. Slugs make sad havoc very often with Lettuces and other vegetables; there is no better remedy than to dust the plants late in the evening or early in the morning with quicklime. To check the ravages of birds dry soot or wood ashes dusted over the plants will usually be effectual. They should be dusted until they have made the second leaves, when birds rarely trouble them, but with Peas where sparrows abound the dusting with dry soot early in the morning whilst the haulms are damp will be necessary for some time. In some places the seeds of Turnips, Cauliflowers, and others of the Brassica tribe are taken when the crop is just appearing above ground, and unless they are protected by nets or dusted with quicklime or soot frequently are very much thinned if not destroyed. We have a complete army of birds, especially chaffinches, which are voracious seed-eaters, yet we do not suffer from their attacks, as we damp seeds with a few exceptions with water and coat them thoroughly with red lead before sowing. It gives a little extra trouble at sowing time, saving, however, much after trouble. Clear off spent crops of Broccoli, Kales, &c., and let the ground be well manured and dug or trenched preparatory to sowing with late Peas, of which a crop corresponding to the requirements of the family should be sown every ten days or fortnight up to the early part of June. We depend principally upon Dr. Maclean, Veitch's Perfection, Omega, Culverwell's Prolific, and Ne Plus Ultra for the summer and autumn supply of Peas. Sowing in trenches prepared for Celery, with the difference that though a trench is made it is filled up again to the level, is a good practice in shallow poor soils, but with those duly trenched and liberally manured is altogether unnecessary. Celery trenches for the early crops may be prepared. We take out the trench 18 inches wide and 10 to 12 inches deep, placing the soil in the space between two trenches—viz., 8 feet, and crop the ridges with a row of Lettuce upon each, sown at fortnightly intervals. The trenches have 6 inches of rich manure placed in them and well mixed with the soil. Earth-up and stake Peas as they require it. Make a sowing of Broad Beans, Radishes, Lettuces, Turnips, Spinach, &c., as required to meet the demand, keeping the hoe freely in use amongst growing crops whenever the weather is favourable. Proceed with the planting of herbs, which bring to a close as soon as possible. Sow at once a good breadth of Parsley for the principal supply in late summer, autumn, and winter. The scarcity of Parsley in winter is often due to the scant means taken to secure it. Sow Cauliflower for late summer use.

Forcing Department.—In bright weather the lights are better drawn off Carrots, Potatoes, &c., and constantly off Lettuces, Radishes, &c., in mild weather, having them in readiness, however, in case of frost. Celery intended for planting out early in next month should be well hardened, but gradually, as "bolting" is certain to result from a sudden check. Plants from seed sown early in March should be kept near the glass in a cool house or frame, so that they may grow up hardy and be in good order for pricking out next month in rich soil in the open ground. Cauliflower plants raised in cold frames from seed sown in February or early March prick out in warm situations in the open ground, also Brussels Sprouts from sowings made under glass. French Beans may yet be sown in frames or pits. The plants in bearing should be well supplied with water and liquid manure. Pot off Tomatoes; strong forward plants well hardened off are essential for outdoor fruiting. Shift Capsicums into larger pots. We fruit ours three in an 8-inch pot.

FLOWER GARDEN.

The means at the disposal of most gardeners are very inadequate to the growth and proper turn-out of the immense quantities of bedding plants requisite to make a successful display. A few beds well done are very much better than an immense breadth imperfectly filled until late in the season. Many makeshift appliances are called in requisition, and some of them of a very questionable character—sheltered places very often overhung by trees. The plants are brought from the glare of sunlight into shade, and are taken from darkness to light again; the foliage becomes brown and the plants stunted after planting out, taking a long time to recover. Still, until better accommodation is provided—glass houses, pits, or frames—temporary means of protecting the plants from spring frosts must be had resort to, such as turf pits and lattice frameworks covered with canvas or frigi domo. A lean-to house of this nature can be readily improvised where there is a wall, or a span-roofed structure may be speedily erected, the canvas lights being moveable so that the plants can have full

exposure whenever the weather is mild; but the sides should be closed, as drying winds are very prejudicial to the health of the plants. Whatever the means employed for hardening off the plants, ample protecting material should be at hand, so that they may be quickly covered in case of frost. *Verbenas*, *Lobelias*, *Petunias*, *Ageratums*, *Geraniums*, and plants of a similar character should be the first moved—strong plants large enough for planting out, which will afford an opportunity of forwarding other plants in a backward state in the structures from which they have been withdrawn. There is yet ample time to propagate cuttings of *Coleuses*, *Iresines*, *Petunias*, *Verbenas*, &c., and have good plants by bedding-out time. Seedling plants of *Lobelias*, *Petunias*, *Ageratums*, *Tagetes*, *Violas*, &c., are much better pricked out in cold frames in about 6 inches thickness of light loam and one-third leaf soil with a sixth of sand, at a distance of 2 to 3 inches apart, than coddled in heat. The lights should be kept rather close and shade be afforded until the plants are established, and by closing early in the afternoon and sprinkling overhead they will grow strongly and in due time may be lifted with capital balls. The different kinds of half-hardy annuals may be treated in the same manner, also *Pyrethrum Golden Feather*. Some, however, prefer to transfer the seedlings of this plant direct from the seed pans to its permanent quarters. For panel work in carpet bedding that plan is suitable, but for the edging of flower beds we find pricking-out advisable. *Alternantheras* may be struck very successfully in beds, the cuttings being inserted rather closely; if kept close and moist they soon root. They are the better, however, of a slight bottom heat. Cuttings of *Centaurea candidissima* strike freely in gentle heat, care being taken not to keep them too moist. *Mesembryanthemum cordifolium* variegatum may have the same treatment as *Alternantheras*.

Roses as yet unpruned should be no longer neglected. In exposed situations in the north it is not safe to prune until the latter part of April. The bloom is a little later, but safety for the young growths from spring frosts is thereby ensured. Complete the clipping of Box edgings, Ivy clipping, and the pruning of evergreen shrubs. This is a capital time for cutting hard in overgrown hedges of Yew, Holly, Privet, Box, Laurel, and Arbor Vitæ; also complete the planting of choice evergreen shrubs, though they may be shifted for some time yet, particularly Hollies. This is also the best time for transplanting Pampas Grass, it being desirable to move it with a ball, and in planting employ some rich vegetable compost. Water liberally in dry weather.

Aquatic Plants.—These are but little grown in gardens, but are coming to the fore, some of them being sweet and lovely, notably *Aponogeton distachyon*, which is so choice that no garden or greenhouse should be without it. Its flowers are white and deliciously fragrant. We have basins about 15 inches in diameter and about 12 inches deep, with 4 inches of rather strong loam at the bottom, in which the plants are planted, and by keeping them in the greenhouse from October to May, then placing them outdoors, we have flowers of this desirable aquatic all the year round, the basins only requiring to be kept full of rain water. In basins and tanks outdoors it is hardy in 12 to 15 inches depth of water. This is a good time to plant aquatic plants. *Nymphæas* take first rank, *N. candidissima* being very white in colour but not so strong-growing as *N. alba*. *N. odorata*, of which there is a smaller form—viz., minor, suitable for shallow basins, doing well in 15 to 18 inches depth of water. *Nuphar advena* and *N. lutea* have "cups of bright gold;" the plants like a muddy bottom with 2 to 3 feet depth of water. The *Iris pseud-acorus* is an useful aquatic, but requires to be kept within bounds. *Villarsia nymphaeoides*, *Typha angustifolia*, *Richardia æthiopica* (hardy in 18 inches depth of water) are desirable, as also are *Stratiotes aloides*, *Orontium aquaticum*, *Pontederia cordata*, *Hottonia palustris*, *Butomus umbellatus*, *Ranunculus aquatilis*, *Polygonum amphibium*, *Jussiea grandiflora*, *Alisma Plantago*, *Epilobium hirsutum*, *Lobelia Dortmanni*, *Sagittaria latifolia flore-pleno*, *S. sagittifolia flore-pleno*, *Myriophyllum spicatum*, and *Caltha palustris*, the variety *monstrosa* being truly gorgeous. Damp ground will accommodate the lovely *Menyanthes trifoliata* and *Lythrum roseum superbum*; and with percolating or running shallow water, *Sundew* (*Drosera rotundifolia*), on an island of peat all but submerged, covered with live sphagnum, in which the plants must be fixed. Foliage plants in aquatics are *Carex pendula*, *C. acuta*, *C. paniculata*, *Equisetum fluviatile*, *E. hyemale*, *Juncus conglomeratus* and var. *variegata*, *Thalia dealbata*, *Acorus calamus* and *A. graminea variegata*, *Caladium virginicum* and *Cyperus vegetus*.

FRUIT HOUSES.

Figs.—To have well-ripened fruit it is necessary to ventilate very freely whenever the weather is favourable, admitting some air constantly day and night, and lessening the supply of water when the fruit is fully ripening, and the atmospheric moisture, upon which and ventilation depend the colour and quality of the fruit. When the fruit is swelling the trees can hardly have too much water, especially those in pots, keeping also the atmosphere moist by sprinkling the house and syringing the trees twice a day. Liquid manure should be given to trees carrying a heavy crop of fruit. Attend frequently to the tying-in, thinning, stopping

the shoots at the fourth or fifth leaf of such as are required to form spurs, pinching the laterals succeeding at the first or second leaf, avoiding overcrowding of the shoots, which is fatal to good crops and fine fruit.

Pines.—Closing houses entirely in which young plants are in course of preparation for fruiting at a high temperature is conducive of soft, drawn, weakly growth, which should be carefully avoided by the employment of as little fire heat as practicable, husbanding the sun heat, and maintaining a moderate moisture in the house, by which means robust growth combined with sturdy habit is secured, the plants being in a position to obtain plenty of light and air. Sprinkling will be necessary occasionally, especially at closing time, but do not close entirely at a high temperature or a vapour bath will be produced, and syringe overhead about twice a week. No more artificial heat should be employed than to maintain the temperature at 65° or 60° by night, 70° to 75° by day. Commence ventilating at 75°, gradually increasing with the temperature to 85°, keeping it by day from sun heat at 85°, 90°, or 95°, but with abundance of air, reducing at 80°, closing for the day at that temperature. The bottom heat keep steady at 85°, or between 80° and 90°. Weak liquid manure may be applied with advantage to plants swelling but not ripening their fruit. Examine the plants regularly, and when water is required apply it liberally. If the plunging material settles down from the pots apply fresh to the surface to keep the pots from being acted on by the atmosphere prejudicially. In the case of large panes of glass and the sun very powerful a slight shade for an hour or two at midday will be of service, but with small squares of glass is not needful. As the fruit ripens both plant and fruit may be removed to a cooler house, which will enable its being kept sound for a lengthened period—longer at this time of year than any other. When the suckers of fruiting plants become large enough to handle screw out the hearts of those not required for stock; one, or at most two suckers, should only be retained to a plant.

Cherry House.—When the stoning is complete the fruit will commence colouring. The temperature should not exceed 65° by artificial means, and 60° to 55° by night, with a little ventilation, increasing it at 70°, and not allowing the heat to rise above 75° without full ventilation, closing at 70°, subject to the leaving of a little air on constantly at the top of the house. From commencing to colour until the trees are cleared of the fruit syringing must cease or the fruit will crack; but a good moisture should be maintained in the house by keeping the surface of the border moist, or if the trees are in pots damping the floors, &c., two or three times a day, avoiding, however, a stagnated atmosphere. Aphides must be kept under by fumigation; their presence for any length of time disfigures the fruit. See that the borders do not want for water, and liquid manure should be liberally applied to trees in pots.

PLANT HOUSES.

Greenhouse.—*Deutzia gracilis* though not a greenhouse plant is one of the finest for decorative purposes in spring, and is readily propagated by cuttings of the young wood taken off with a heel, inserting them in sandy loam around the sides of a 5 or 6-inch pot which will hold from nine to a dozen. Plunge the pots in gentle bottom heat and the cuttings will soon root, and should then be potted off singly in small pots and returned to the frame, shifting into larger pots as they fill the smaller ones with roots. Four or five-inch pots for the most vigorous plants will be sufficiently large the first year. The plants should be placed outdoors in July. Plants of this size are very useful for decorative purposes. It is desirable to keep plants that have been forced under glass until the growth is made, potting being done immediately after flowering, the plants doing well in turfy loam with a fourth of well-decayed manure or leaf soil. Outdoors the plants should have a sunny situation and be kept well supplied with water. *Spiræa japonica* when out of bloom must be hardened off, and when danger from frost is past the plants should be divided into two or more pieces and be planted out in rich moist soil, allowing a foot distance from plant to plant every way. *Lily of the Valley* if planted out in clumps of about twelve to twenty crowns after being hardened-off after forcing will be available for forcing again after a year's growth outdoors. *Rhododendrons*, hardy *Azaleas*, and other shrubs employed for forcing should after flowering be kept in a cool house for a time before placing them outdoors, and though they may form flower buds they are not nearly so good for forcing as fresh plants. *Schizostylis coccinea* kept in pots should now be parted. We divide plants in 9-inch pots into half a dozen pieces, and plant them out in rich light soil in an open yet sheltered situation, 18 inches apart every way, keeping them well supplied with water, lifting in autumn and potting. In a cool house they flower all the winter. Cuttings of *Eupatorium gracile*, *odoratum*, and *riparium* inserted now strike freely in gentle heat, and if potted and grown-on liberally make useful plants for winter flowering. The *Otaheite Orange* is very useful for winter flowering; the plants after flowering should be pushed in gentle heat and be well supplied with water. They should be syringed overhead, and are the better of slight shade. Any plants in a bad state at the roots, which will readily be apparent by the stunted and

unhealthy condition of the heads, turn out of the pots, reduce the balls, place in smaller pots, plunging in bottom heat if at command not exceeding 75°, and maintaining a warm moist atmosphere. Similar remarks apply to Oranges of all sorts. Double Primulas as they go out of bloom should be parted into as many divisions as the plants have crowns, securing to each division if possible a portion of stem, paring the end transversely with a sharp knife, and inserting singly in small pots in sandy loam with a little peat, surrounding the base of the cuttings with silver sand, keeping in gentle warmth and rather close until rooted. The old Double White should be grown in quantity, it being very useful. When rooted grow the plants on in cold frames through the summer. *Fuchsia serratifolia* vars. are valuable winter-flowering plants. Cuttings strike freely in a slight hotbed. Pot-off into 8-inch pots when rooted, return to the hotbed until established, then remove to a cold frame, shifting into larger pots as required. Old plants cut-in may be planted in the open ground in July, and be taken up and potted in October or before frost, placing them in a cold pit for a week or two, keeping them shaded if bright weather prevail, then remove them to the greenhouse, affording a light airy situation. Cut back *Acacias* and other New Holland plants as they go out of bloom, doing it moderately, as they do not break freely from the old wood. *Epacris* cut-in close, also *Cytisus* and similar free-breaking plants, encouraging growth by sprinkling overhead and keeping rather close. Ventilate Heaths very freely, and remove the seed pods from *Azaleas* as the bloom is cast.

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense. Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

BOOKS (D. W. B.).—The "Horticultural Directory" can be had from our office, and free by post if 2s. 4d. are prepaid accompanying your full address.

MILDEW ON ROSES (John Walton).—If you dust thickly the leaves of your Roses with soot in the morning when the dew is on them, and allow it to remain for a couple of days, then washing it off by the aid of a syringe, you will find them much benefited.

MARÉCHAL NIEL ROSE (W. R. C. C.).—The probability is that your light sandy soil is also a poor one, and that the tree has not a very vigorous root-action. The best thing you can do is to remove the soil about the plant and replace it with a rich compost. There is evidently not sufficient vigour in the plant to enable it to develop its blooms.

PRESERVING ROSE PETALS (J.R.).—They only require to be dried by exposure to dry air, and then kept in a closely covered jar.

VARIEGATED LAUREL LEAVES (Idem).—They are not uncommon, and those you enclose are very irregular.

PERENNIAL FLOWERS FROM SEED (Inquisitive).—Sweet William, Pentstemon, Viola, Pansy, and *Ploceæ* seed should be sown immediately in rich light soil on a warm sheltered border; the Peony, Tritoma, and *Potentilla* seed to be sown in pots, which plunge in a gentle bottom heat and cover with a handglass or plant-protector.

PLANTING A SMALL CIRCULAR FLOWER BED (C. J. B.).—Consult your own taste. If you like *Geraniums* plant it with a mixture of choice kinds, so as to secure as much variety as possible. Here are a few inexpensive and good:—Master Christine, pink; Purty, white; Mrs. Musters, deep pink; Truth, salmon; Charley Casbon, scarlet; Mrs. R. Hole, magenta; Wellington, dark crimson; Theocritus, orange-scarlet; Edward Sutton, crimson; Triomphe de Stella, bright scarlet; Black Douglas, bronze foliage; Maréchal MacMahon, bronze foliage; William Sandy, golden tricolor; Lass o' Gowrie, silver tricolor. You may also have a ring of blue Lobelia or the yellow Golden Pyrethrum inside your edging of *Sempervivum*, and fill the centre with a *Geranium* or *Verbena* of your favourite colour. *Heliotrope* also makes a good bed, and has the additional merit of a rich perfume.

AUCUBA POLLEN (S. B.).—Almost any nurseryman could supply you with *Aucuba* pollen.

WHITE GRAINS ON GRAPE VINE (S. M.).—The small, white, egg-like substance which you have in such numbers on your Vines is a certain indication of high health. They will disappear as the growth becomes fully developed. You may fumigate with tobacco paper when the fruit is set. A severe frost will destroy the blossom of Filberts and Hazel Nuts.

VINE LEAVES (W. Lovel).—The Vine leaves are perfectly healthy. The small "crystal drops" are exudations of cellular tissue induced by the vigorous health of the Vine, and need cause you no alarm. The white on the upper surface has nothing to do with the Vine, and looks as if it was paint washed from the woodwork of the house and dropped on the leaves.

NURSERY GARDEN TENANT (Mary Hales).—The lease must be arranged between the tenant and landlord. There are no settled rules, and you had better consult an attorney to determine what is equitable.

MAKING HOTBEDS (F. Y.).—You may make hotbeds at any time of the year whenever you require the use of one. There is no particular season when they ought to be made in the same way as there is for the sowing of seeds.

HOT-WATER HEATING APPARATUS (D. H. W.).—To carry the flow and return pipes of a Pine pit through another house would of course affect the temperature of that house. You may avoid this by placing the pipes in a

tunnel beneath the floor, which, moreover, would facilitate any necessary subsequent inspection or search for leakage. If the pipes at the end of the Pine pit farthest from the boiler are 6 inches above it the circulation will be tolerably brisk; but we should prefer a rise of 2 feet if it can be managed, so as to ensure that prompt full circulation which is so important in Pine culture.

TO KILL SLUGS (Alpha).—The two best remedies for getting rid of slugs that we know of are unslaked lime in powder, and salt. The former you can use at any time by dusting it over your crops early in the morning when the slugs are about, and by repeating the operation whenever the previous application has lost its effect. Salt can only be used when the ground is bare, otherwise you are apt to injure the growing crop. Every time you ridge up or dig the ground give it a heavy dressing of salt, and this will not only kill the slugs with which it comes in contact, but will act as a manure as well.

GILDING IRONWORK (Subscriber).—We do not know that there is a gold paint used as a substitute for gold leaf for gilding ironwork. There is a bronze that is often used for that purpose, and which any painter can supply.

NAMES OF PLANTS (A. Boyle).—*Corydalis solida*. (W. P.).—*Arabis lucida variegata*. (J. S.).—Yes. It is the Fern you suppose. (Constant Reader).—*Ascia buxifolia*. (Subscriber).—1, *Polygala oppositifolia*; 2, *Thyracanthus rutilans* or *T. Schomburgkianus*; 4, *Justicia Eustachiana*. (Subscriber, Bagshot).—We cannot undertake to name plants that are not in flower.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

MANAGEMENT OF A BUTTER-MAKING DAIRY.

(Continued.)

NOTWITHSTANDING we have recommended earth floors in cow houses, some circumstances may arise which may make it injudicious to enforce them; we therefore think that the next best plan is to make floors of asphalt or concrete, with proper fall and gutter for drainage to tanks for the reception of the urine. With regard to finding accommodation for the dairy cows on the home farm, it often happens that there is an old barn which when not used for its original purpose may be easily fitted up as cowstalls and any thatched building of this kind answers well because it is warm in winter and cool in summer. If, however, a new erection is required we recommend brick walls with pantile roof, and if not laid in mortar the ventilation will then be good. The internal fittings should be with double or single ranges, according to the width of the building. If with a double range there should be a feeding path between. It is worth consideration whether the cows should stand in pairs with a stall division between each pair 7 feet in width, or whether they should be tethered singly in rows, the latter plan being less expensive in the cost of fittings. The former, however, is much better for the animals, because they feed separately without interfering with each other, nor can they turn round and drop their dung upon the part assigned for their bed. When stalls are constructed in this way cocoa-nut matting is sometimes used for a bed. There should be a pathway for feeding at the head and also behind the stalls for the removal of dung.

In again referring to earth floors, the advantage of them is direct as well as indirect, taking first the value of the manure obtained, which varies from 1s. 6d. to 2s. per cow per week whilst in the house, the quantity of excrement both liquid and solid being about 80 lbs. per day, and which certainly cannot be saved in so valuable and useful a form in any other way. There is also a saving in straw for litter to be considered. Then again, indirectly, the advantage of the animals living in a perfectly pure atmosphere is of the highest importance, not only as regards their health, but because we know that in foul air the germs of putrescence are formed, which attack both the food of the animals and also the milk whilst being taken from the cow. In fact, there is no substance or liquid to which the germs of putrescence so readily and surely attach as milk. These germs multiply in an almost incredible manner. They produce and reproduce upon the principle of the parasites, only much more rapidly. The milk then becomes impure; but this is often not discernible if used directly as milk, but when used for making butter it is often the cause of a bad article, which sometimes is quite unsaleable.

In referring to the duties of herdsmen or dairymen, attempts have been made to introduce a milking machine to supersede the

usual method of extracting the milk from the udder by hand, but without success in our experience. In milking great cleanliness should be observed, and it should be done quickly, always remembering that the last portion of the milk—the strippings—is the richest in cream. When this is not effectually drawn away it is often the cause of irritating accumulations in the udder, thereby shortening the milking period, and is often the primary cause of the loss of one or more quarters of the udder. It is likewise the cause sometimes of puerperal or milk fever at the time of calving. Cows, and especially young ones, should be treated kindly, because when they are irritated they will not give down their milk freely. Ill-tempered animals which often kick down a bucket of milk should not be conquered by fighting, but subdued by gentleness. In fact, if this system is adopted with heifers there will be no refractory cows. Cows when coming to the stalls to be milked should each have their regular place, and they will know it as well as the milkman. Wherever there is a sufficiency of pasture the cows should never be allowed to feed on the same ground two days in succession, but a change, although it may be only daily, is advisable; nor on any account should idle horses or colts be allowed in pastures to feed with the cows, although they may with advantage be allowed to feed in the dairy pastures in the absence of the cows, because they will often eat portions and bunches of grass refused by the cows. One of the great points in dairy management is to make sure of a herdsman who not only understands his work but takes delight in it, being fond of the cattle under his charge. He does his work with pride and pleasure, and with a man of this stamp it is quite amusing to notice how fond the cattle are of him; whereas, if unfortunately a herdsman only goes about his daily work with the view of earning so much money it may be taken for certain that he will himself require more looking after by his employer.

In our previous remarks referring to the cow houses we omitted to notice the necessity of providing calving boxes for the cows and accommodation for the bull. For the former it is essential that a box for a cow on the verge of calving should be roomy and not less than 12 feet by 12, the divisions to be not less than 5 feet high and close-boarded. The box to which we have previously alluded may well be provided for all the cows in the herd. It is only a question of expense, in which case no special provision of an apartment for cows at calving time will be required. An apartment for the bull, however, requires particular care not only in its placing but construction also, especially for animals of the Channel Island breed and their crosses; they often prove very refractory and sometimes vicious at an early age, and much more so than any other breed of cattle used for dairy purposes. It is first of all essential that the bull house should be placed in the most quiet part of the farm premises, where he will not be disturbed by the passing to and fro of the dairy cows. We in our own practice do not like tethering the animals, for when the cows visit them they are obliged to be let loose and tethered again; and in the case of some animals it is very dangerous for the herdsman to untie and tie them up again, many very serious injuries having sometimes been inflicted upon the man in charge. Our own plan is therefore to provide a double pen 13 feet by 13, and 7 feet high, with extra slabs up 4 feet high, under cover, and the same space outside, divided by a drawing door which can be moved backward or forward with a bar of iron by the man outside without entering the pens. In case of the visit of a cow, she enters the outside apartment and the door is withdrawn, just in the same way as when the pens are littered or cleaned out the inside or outside can be attended to without the presence of the bull. The arrangement for feeding is by a shutter to open outside immediately above the feeding manger; in this way the man in attendance need not ever be in the actual presence of the bull. Under this mode of management we have known pure pedigree stock of great value available for breeding purposes for years after they were entirely unapproachable by man, and obliged to be shot at last by the butcher. The mode of feeding a bull is important, as it should never be allowed a large quantity of roots or green fodder the same as allowed to cows, but a very moderate quantity, with a fair portion, say 3 or 4 lbs., of bean or barley meal daily, and water always accessible.

Let us now refer to the treatment of the cow before and after calving. We have always found in case a cow is allowed to go dry a long time before calving that they are apt to get into too high condition, in which case from fatty deposits internally milk fever often occurs at calving time. We never in our own practice could understand the necessity of letting cows go dry long before the calf was due, and have often milked the cows to within a few days of calving with the best results both to cow and calf. It often happens that the cow shows a very extended and inflamed udder some days before calving, in which case we have never hesitated to take a little milk once a day, and thus give the relief requisite. Again, to have healthy gestation, the cow always ought to have a moderate amount of exercise, which they get in summer, but in winter and house-feeding they get little or none, except in box-feeding, when they can move about freely and lie down with comfort, so essential to healthy pregnancy. In summer time when the flies tease the cows it is not our opinion that trees

in the pasture for shade are the best protection for them, for although we have splendid trees in our pastures we always preferred during the heat of the day to take the animals to the house, and being well ventilated in the roof we shut the doors and windows to exclude the sunshine and the flies also, for they always annoy most in the sunlight. The cows will then be comfortable if they get some green fodder and water, which is a great contrast to the disquietude they feel under the shade of trees, to say nothing of their manure being totally lost. We have on one property erected a shed in the pasture of an ornamental appearance, which is circular and divided into three compartments, to which the animals can resort for shelter or shade according to the time of year. The floor of the building is laid with dry earth or ashes to secure the manure, and renewed when required; and where the pastures are a considerable distance from the homestead the circular shed answers well without being an unsightly object if properly planned. Cows after calving will require particular attention for a few days, but more especially heifers with their first calf. We have always found it advisable before the calf can take all the milk to continue to take away a large portion of the milk, and leave the calf to clear out the udder entirely, which it can do with so much more effect than the milkman.

We cannot conclude our subject without some reference to the casualties to which dairy cows are liable. We have previously referred to the disease called "hoven," and which the veterinary profession know as tympanitis, or distension of the rumen or large stomach with gas. It is a disease which requires very prompt treatment, or suffocation may ensue from pressure of the distended stomach on the lungs, and often before medical aid can be called in. One remedy, and which should be resorted to when professional aid cannot be obtained in time, is to puncture the distended stomach with an instrument called the "trochar" or "stiletto," which is a sharply pointed and sheathed instrument, in the use of which the "stiletto" is withdrawn and the sheath allowed to remain for a short time, in order that the gas may escape. Those engaged in the management of dairy cows should make themselves acquainted with this instrument, and be able to use it in case of need. After the use of the "trochar," which any person after direction from a veterinary may use with impunity, medical aids may still be required, and some compounds of ammonia are the best adapted for use as a drench; but in the absence of this a full dose of gin is an excellent remedy. We defer any remarks relating to the rearing of calves, hoping at a future time to take up that subject specially.

WORK ON THE HOME FARM.

Horse Labour is now continued upon the land, and the season having been generally favourable but little time has been lost by wet days, the work of the farm is therefore generally in a forward state. Where the barley sowing is not yet finished the sooner it is completed the better, for it is sometimes delayed by the sheep not having finished feeding off the roots until a late period, the roots being required for sheep. This, however, is a matter for serious consideration on the home farm, seeing that we have now a succession of crops so perfect. The provision for sheep ought to be so arranged as not to delay the barley sowing beyond the middle of April. If the calculation is made of the loss consequent upon delay in the seed time for barley by holding over a root crop to a late period, it will be found to be a considerable deduction on the profits of sheep. This cannot be said to be successful management unless mangold is held on to be consumed together with early grasses, and supplemented by artificial food to counteract the effect of laxative vegetable food, such as barley or bean meal, mixed with the cut mangold. This counteraction is extremely desirable now more than at any other time of the year, for when ewes and lambs first enter upon grass feeding they often suffer from purging, the lambs in particular being often attacked with the "white scour," which is certainly the most fatal malady we have ever encountered. As it generally attacks them when they first go into the water meadows or early field grasses the shepherds should be prepared for it. This complaint often arises from a flush of milk, the ewes having more than the young lambs can take, hence an accumulation in the udder; the milk then becomes unhealthy and produces the white scour, therefore the ewes should be constantly noticed, and if their udders are distended they should be relieved. It always has been our constant practice whilst the lambs are young to daily examine the ewes, because a preventive is better than cure; in fact, white scour is rarely if ever cured unless it is observed at the outbreak.

The sowing of clover and grass seeds, either in the Lent corn or wheat, must not longer be delayed, and if circumstances have prevented the seeding when the corn was put in the clovers will come very well by sowing now. The ring roller is best to prepare for the clover seed, otherwise if the land be at all rough it is unkind for such small seeds, and they often get buried too deep. If the corn has vegetated and shows above ground, the ring roller followed by the chain harrow will do it no injury, and will sometimes be beneficial, especially if wireworms and other insect enemies are found attacking the corn.

The horse labour on the land now preparing for mangold should be continuous in fine weather, and we do not approve of much ploughing, we rather prefer the scarifier, and at this time of year one-horse labour with proper implements on anything but the heaviest land will be found quite sufficient. One-horse ploughs are now common, or the double-furrow plough with two horses attached. In both these cases in summer tillage much horse labour is saved without injury to the animals if they are of the right size and power, and well fed. It has long been our opinion that small undersized horses on the home farm are out of place, as you require more of them; there are more to feed, more lives at stake, more to shoe and harness, and we therefore advise that farm horses should not be less than 16½ or 17 hands high, with substance and power in proportion. Every horse can then take its part of the work on the farm in one-horse labour; in fact, this one-horse work on the home farm where only a few are kept is the only economical substitute for steam culture, and is the only way by which horse power can be reasonably compared with the advantages of steam power, so much in use upon the larger farms.

Hand Labour.—The women now must be employed on various work on the home farm, as there is much work which it will not pay for employing men to carry out. On various farms we constantly employ women, such as weeding, couching, &c. In some districts, however, women labour is not available, as they won't work in the fields. Now this when it occurs is often the farmer's own fault, because generally women can be found for farm work if they are constantly employed winter and summer, wet and dry weather, and unless they are found constant work and become accustomed to outdoor occupation they cannot bear the change continually from indoor occupation to outdoor work in the fields. It is not reasonable to expect women to be always ready for work in the fields when it suits the farmer to only occasionally employ them; on the other hand, we contend it will answer the farmer's purpose to employ some women constantly. There is various work continually requiring attention on the home farm, in the fields in dry weather, and also at the homestead in showery weather, and it only requires judicious and thoughtful arrangement to successfully employ women on the farm. Weeding is now the most urgent work for them, which just at this time is very important; and although men are often employed in this work they seldom do more than women can. For much of the work connected with sheep and cattle feeding we constantly employ women, such as preparing mangolds or swedes for the cutter and other light work.

ARTIFICIAL INCUBATION.

(Continued from page 253.)

MANY as were the furnaces in France which might in M. Reaumur's opinion be turned to account for incubation—those of bakers, confectioners, glass and iron workers—still he recognised the fact that in many parts of the country no such appliances existed, and if artificial incubation was to become a branch of national industry it must be more generally practised. He thereupon set to work to make experiments in hatching in hotbeds. So unwearied was his diligence in this work, and so instructive were his failures and successes alike, that at the risk of being wearisome we shall attempt to give a summary of some very long and rather tedious chapters in which he relates his experiments and their results.

The idea was first suggested to him by accounts of old writers, though all of them seemed ignorant of their subject. Aristotle and Democritus, Gesner and Aldrovandus alike, evidently related that of which they had no personal experience. Had any of the many writers who have mentioned the practice, he says, "experimented thereon he would not have failed to assure us of the fact, and would not have forgotten to relate the difficulties which he had to overcome. Apparently he must have encountered at least a part of those, which in spite of experiments made with incessant care, and which have almost exhausted my patience, have prevented my reaching the point of hatching a single chicken after the expiration of almost a year." There are certain facts about the nature of dung beds, he says, to be remarked on before trying them. One is that their heat increases for several days after it has been made up, so that at certain times the hand cannot be held in one: indeed his first batch of eggs, though placed in a vase, were all cooked. Another is that the heat varies much at different depths. After it has come to its highest point it decreases in the same ratio that it has increased. The temperature for incubation is one of the intermediate degrees of heat in both the increase and decrease: could, then, this intermediate temperature, which would naturally last barely a day, by any means be protracted for three weeks? M. Reaumur believed it an absolute impossibility; but it occurred to him as feasible to heat a kind of oven by means of a hotbed—i.e., to surround a large hollow space with it in such a way as to heat the internal air to a regulated temperature.

His first trial was thus conducted: He made up two small hotbeds with a narrow interval between them, the ends of which he thickly filled up so as to leave a cavity of about 3½ feet long;

over this was put a cover of two boards, which could be either close or separated for the regulation of the temperature. Rough as was the apparatus it had all the points essential to success. It was placed under a shed to protect it from rain. For some days the temperature continued too high, though the boards were kept open. When it descended to the desired point he put in two hundred eggs; some of them were placed on shelves, some in baskets. Every day one was broken, and it was evident that the germ was duly developing. A second hotbed was now set up for fear the heat of the first might fail; but subsequent experience showed this to have been quite unnecessary, and that it is quite possible to keep up the temperature of the same bed for several periods of incubation up to six months. In this first batch and in many that followed all went well up to the eighth or tenth day, but then came a change. An odour soon announced that some were spoilt, their shells cracked: they were discovered and removed. More followed in the same way, and at last all were found to be bad and their contents to have turned to a black or green fluid. This was the end of one experiment. M. Reaumur was not daunted by the failure, but considered much gained in that certain chickens had duly developed up to the fourteenth or fifteenth day. He tried another batch of eggs and duly placed some fresh-laid in the pit, but the result was little more satisfactory, though in some cases all went well till a day or two before the due time of hatching. For two months and a half he continued unsuccessfully to repeat the same experiment. After an interval of rest he began again, and for three more months tried hotbeds of various construction. At last he made the alteration of putting the bed in a stable with six horses. It was a wet season, and the whole apparatus, eggs included, seemed bathed in moisture: still for seven or eight days they duly developed. After a time this moisture subsided and there was no appearance of steam in the receptacle for the eggs, yet they were added in exactly the same way. For two months and a half more did he daily put in fresh eggs, but with no better result. From a series of observations he came to the conclusion that the damper the place was the earlier did the eggs go wrong, and in the end that the foul exhalations from the dung caused the death of the embryo. A remedy for this occurred to him—viz., to surround the egg chamber with well matched boarding, through which the warmth of the hotbed might penetrate but not the exhalation. A still simpler expedient was to put a barrel in the bed. This he so arranged that its top was 3 or 4 inches above the dung. Its lid had a large square hole in the centre with its own removable cover, and eight smaller holes capable of being filled up with corks: these were the regulators of the temperature. Lastly he had some round baskets made an inch or two less in diameter than the tub and varying in depth, some being made for one layer of eggs, some for two. To begin with, he put about two hundred eggs into these baskets, the lowest of which was a few inches from the bottom, the highest a few inches from the top of the tub. They were kept in position by various means which he thought not worth relating. The success of this ingenious device was complete, and at the end of twenty-one days a number of chicks duly came out. Several more tubs were brought into use, and M. Reaumur had for some time the daily pleasure of watching large and successful hatches.

His summary of the knowledge gained through these experiments is instructive, and we will give it in his own words translated:—"After having reached the point of teaching the person who had charge of the hotbeds to maintain constantly a proper temperature, and after having been perfectly satisfied with the regularity of that which he maintained, I was astonished at the fact that the chickens from many batches of eggs were not more fortunate; in fact that all, or almost all, perished. The thermometer could not show me the cause of their death, yet another instrument might have done so, one used by physicians too, and which they have long desired to bring to the same standard of perfection that the thermometer has attained—viz., the hygrometer, or the instrument which gives a kind of measurement of the humidity of the air in which it is placed. At times the air of the egg chamber was too moist, as proved by drops of water hanging from the cover. This is prejudicial to the chickens within the egg; in fact, unpleasant experiences many times repeated have revealed the fact that even when there is not sufficient moisture in the egg chamber to generate drops on the walls and sides, still it may be filled with a vapour destructive to the embryo. Before I was persuaded of its existence, before I discovered how baneful it was, and before I devised means of preventing it forming and resting in the egg chambers, it was my fate to lose many successive batches of eggs."—C.

THE BIRMINGHAM POULTRY EXHIBITION SOCIETY.

THE Committee met at Bingley Hall on the 15th, under the presidency of Mr. G. C. Adkins, to revise the prize list for their department of the Show to be held in December next. Several alterations were made, and a few fresh classes were introduced.

without increasing the total amount of money to be granted by the Council, a saving having been effected by withdrawing one prize from those varieties which have not been shown in sufficient numbers to justify the continuation of the sums hitherto allotted to them.

No change whatever was made in the classes for Brahma Pootras; but in Dorkings the prizes which have up to the present time been awarded to "Coloured, except Silver-Grey," will be given to "Greys, except Silvers." As Cuckoo Dorkings seem to be coming into favour again a class has been added for them, with prizes of £2 and £1 for cocks, and the same amount for hens, and this variety will also compete with the Whites for the £4 cup. In Black Cochins the value of the cup was increased from £3 3s. to £4, and each of the four second prizes was increased from 10s. to £1. In Malays four third prizes of 10s. were added, and an additional £3 cup given, so that there is one for the cocks and another for the hens, instead of both sexes competing together for the preference. The experiment of separating the old birds from the young ones in the Hamburg classes having failed, there will for the future be no separate class for either cockerels or pullets; but the second prizes will all be increased to £1, and the third prizes of 10s. will be added. The class for Silkies having proved to be very unremunerative it will be discontinued; but new classes will be formed for Sultans, with prizes of £2, £1, and 10s., and for Minorcas, with £2 and £1. The class in Game fowls for Whites and Piles will in future be for Piles alone, and that for Black and Brassy-winged, except Greys, will be for "Any other variety." By this change it is hoped to obtain specimens of the rarer kinds of old English Game fowls. The second prizes in the selling classes for any other variety of fowls are increased from 10s. to £1.

A new class is opened among the Ducks or Ornamental Water Fowls for Cayugas, with prizes of £2 and £1, and this variety, as well as the Black East Indian, will in future compete with the Mandarins, Carolina, Call, and other Ducks for the £3 cup.

In Pigeons the class for any other variety of Muffed Tumblers is this year divided into two—one for Saddles and the other for Badges, with prizes of £2 and £1 for each. Considerable alterations have been made in the Dragoon classes, of which there are now six for old birds and two for young ones, with prizes of £2 and 10s. each, and two £3 cups. The classes for old birds are for Blue cocks, Blue hens, Silvers, Blue Chequers, any other colour cocks, any other colour hens; and for young ones, Blue or Silver, Red or Yellow, and any other colour. In Antwerps, too, the arrangement has been altered. There are now six classes instead of four for Silver Duns, Blue or Blue Chequers, and Red or Red Chequers, in old birds, and the same for young ones, with prizes of £2 and £1 in each class.

BATH AND WEST OF ENGLAND SHOW.

WE have received a schedule of the Bath and West of England Society's Show, to be held at Oxford in June next. Coming as it does as one of the first shows in the season, it has for a long series of years past been a matter of peculiar interest among poultry amateurs; and the competition in the Pigeon classes is also generally good.

All entries must be made on or before Wednesday the 1st of May next, and every entry must be at the showyard before ten o'clock in the evening of Saturday the 8th of June next. The poultry will be exhibited as single birds, excepting Bantams, Ducks, and Geese, which will be shown in pairs. There are sixty-four classes for poultry, the first prize in each being £2, the second £1, with an additional third prize of 10s. in each of the distinct variety classes. Besides these premiums two silver cups value five guineas each will be awarded respectively to the best cock and hen exhibited.

There are twenty-one classes for Pigeons with prizes of £1 and 10s. to each class, besides which the flying or homing class has a third prize allotted to it. The Pigeons exhibited in this latter class, after being judged in the pens, will be liberated on the morning of June 10th, and to secure their prizes must be returned to the show before ten on the evening of Tuesday, June 11th.

The excellence of the arrangements and the careful attention to the management of the birds shown will be in the hands of the same experienced amateurs as have so well conducted it in former years.

VARIETIES.

IN 1873, on the representation of the Bombay Chamber of Commerce, who urged that the weight of the export duty and the length of the sea voyage practically disabled Indian wheat from successfully competing with any other country in the English market, except, perhaps, California and Australia, the Government of India freed Indian wheat from all duty on export. Since then, aided by various other circumstances, particularly the shortened transit through the Suez Canal, and recently the state of exchange, and perhaps, to some extent, the condition of eastern Europe, the increase in the trade has been very great. This may

be seen from the figures which in 1871-72 show an export of 687,090 cwt., whereas for the ten months only of 1876-77 the total was 4,885,290 cwts.

WE learn that the stand of Messrs. Sutton & Sons, the Queen's seedsmen, and seedsmen by special warrant to H.R.H. the Prince of Wales, at the Paris Exhibition of 1878, will be one of the most exhaustive displays of horticultural and agricultural produce ever brought together. We understand that there are more than two thousand models from nature of the principal kinds of agricultural and horticultural plants and roots, in addition to nearly five hundred specimens of permanent pasture grasses, as well as eight hundred samples of seeds. The display occupies a large portion of one of the extensive buildings erected at the special desire of H.R.H. the President for illustrations of English agriculture, and it is already in such a forward condition that it will be quite ready for H.R. Highness's private view on the 26th of April. Not only inside are Messrs. Sutton making such an extensive display, but in the Exhibition grounds nearly three acres have been sown with Messrs. Suttons' grass seeds, which are now rapidly forming a beautiful sward. In addition to grass seeds Messrs. Sutton have supplied a great quantity and variety of flower seeds, which will be transplanted during the summer in various parts of the Exhibition grounds, and a most brilliant effect is anticipated.

TO cure scab in sheep rub some plain petroleum with a sponge three times a week; this I learned from a very large Australian sheep-master, who always used it. Dogs can be cured of mange in same way. This I know from personal experience.—N. S. (in *Irish Farmers' Gazette*.)

NOTWITHSTANDING the political agitation in Spain its agriculture is not neglected. We have received the April number of the "Journal of the Valencia Agricultural Society," and it contains some useful information.

MESSRS. EDWARD WEBB & SONS, the Queen's seedsmen of Wordsley, Stourbridge, we are informed, contribute an extensive stand at the Paris Exhibition, consisting of specimens and beautifully finished models of Webb's improved varieties of agricultural roots. Vegetables, flowers, and agricultural and horticultural produce generally will be exhibited, also a large and neatly arranged display of specimens (in the straw) of the noted cereals—wheat, barley, black oats, white oats, &c.—raised by this eminent firm of seed-growers at their extensive and model seed farms at Kinver Hill, together with upwards of one thousand bags of various kinds of seeds for the farm and garden, and a collection of three hundred dried specimens of the natural grasses. The firm will also exhibit many other articles connected with the agricultural and horticultural seed trade, all admirably arranged, the whole forming a remarkable museum, which every visitor should inspect. We learn that a large portion of the Exhibition grounds at Paris have been sown with Webb's grass seeds, which have attained a high reputation all over the world.

THE great dairy interest in America is, writes Mr. E. W. Stewart in the *New York Rural*, represented by 11,000,000 of cows, absorbing a capital of \$500,000,000 in this stock, and the land necessary to maintain these cows cannot be less than fifty millions of acres, which at even \$20 per acre represents a value of \$1,000,000,000, upwards of twenty and a half millions of pounds sterling. Messrs. Horr, Warner, & Co., of Wellington, Ohio, are the most extensive butter makers known. During the season of 1877 they churned over 400,000 lbs. of butter, and this year they are using the milk of 9000 cows.

BEEES DYING.

IN response to Mr. Pettigrew on this subject, all my hives are doing well. The five stocks I have kept since the autumn of 1876 are in straw skeps. Last year only three of them swarmed. The bees of these top swarms I added to the parent hives about September. None of the five had supplies enough for winter, so ere I began to feed I reasoned thus—If they get no help they will all die, if they get only partial help they will also likely die, besides cause me a bit of trouble as well as the expense of feed I give them, and so I concluded it to be best to feed liberally if at all. I gave the five 100 lbs. of the best sugar, adding two pints of water to each 8 lbs. of sugar, and after boiling about the half was put into flower-pot saucers so large that the bees got their share at about two different feeds. An extra eke was put on to hold the saucer, and plenty of thin slips of wood to keep the bees from drowning. This was done about the end of September. I found on examining them about the middle of this month that there were six seams of bees in each of the hives but one, which had five. I am quite satisfied there was never a winter that so little attention was paid to them as this one, never having looked into them for about six months. I never lost but one hive by death, or rather by the death of the queen, never lost one by hunger, or fighting, or disease, nor lost a runaway swarm, was never aware of one running away.

"B. & W." on February 1st, 1877, speaks of queens occasionally

leaving hives at other times than to mate with the drones. I can prove this to be the case. The hive that is spoken of above was lost to me through the queen going out and not finding her way back again. I found her dead at the door. That was in the month of January or February, 1877.—JAMES SHEARER, Cairnie, Aberdeenshire.

THE HUSBANDRY OF BEES.

(Continued from page 312.)

THE bees gather not till July, for then they be discharged of their young, or else they are become now strong to labour; and now sap in flowers is strong and proud by reason of time and force of sun; and now also in the north (and not before) the herbs of greatest vigour put forth their flowers, as beans, fennel, burrage, &c. The most suitable weather for them is heat and drought, because the nesh bee can neither abide cold or wet, and showers (which they well foresee) do interrupt their labours unless they fall in the night, and so they further them.

DRONES.—After casting time you shall benefit your stocks much if you help them to kill their drones, which by all probability and judgment are an idle kind of bees and wasteful. Some say they breed, and have seen young drones in taking their honey, which I know is true. But I am of opinion that there are also bees which have lost their stings, and so become idle and great; there is great use of them. "*Deus et Natura nihil fecit frustra.*" They hate the bees and cause them cast the sooner; they never come forth but when they be overheated; they never come home laden. After casting time, and when the bees want meat, you shall see the labouring bees fasten on them—two, three, or four at once, as if they were thieves to be led to the gallows, and killing them; they cast them out and draw them far from home as hateful enemies. Our housewife, if she be the keeper of her own bees (as she had need to be), may with her bare hand in the heat of the day safely destroy them in the hive's mouth. Some use towards night in a hot day to set before the mouth of the hive a thin board with little holes in it, at which the lesser bees may enter, but not the drones, so that you may kill them at your pleasure.

ANNOYANCES.—Snails spoil the bees by night like thieves. They come so quickly and are so fast that the bees fear them not. Look early and late, especially in a rainy or dewy evening or morning. Mice are no less hurtful, and the rather to hives of straw, and therefore coverings of straw draw them. They will in either at the mouth or shear themselves an hole. The remedy is good cats, rat's-bane, and watching. The cleanly bee hateth the smoke as poison, therefore let your bees stand nearer your garden than your brewhouse or kitchen. They say sparrows and swallows are enemies to bees, but I see it not.

Most hives perish by winter's cold than by all other hurts, for the bee is tender and nice and only lives in warm weather and dies in cold, and therefore let my housewife be persuaded that a warm dry house before described is the chiefest help she can make her bees against this and many more mischiefs. Many use against cold in winter to stop up their hives close, and some set them in houses, persuading themselves that thereby they relieve their bees. First, tossing, moving is hurtful; secondly (in houses), going, knocking, and shaking is noisome; thirdly, too much heat in a house is unnatural for them; but lastly and especially, bees cannot abide to be stopped up close, for at every warm season of the sun they revive, and living, eat, and eating must needs purge abroad. In her house the cleanly bee will not purge herself. Judge you what it is for any living creature not to disburden nature. Being shut up in calm seasons lay your ear to the hive and you shall hear them yearn and yell as so many hundred prisoners, therefore impound not your bee, so profitable and free a creature.

TAKING OF BEES.—Let none stand above three years, else the combs will be black and knotty, your honey will be thin and uncleanly; and if any cast after three years it is such as have swarms of old bees kept all together, which is a great loss. Smoking with rags, rosin, or brimstone many use; some use drowning in a tub of clean water, and the water well heaved will be good botch. Draw out your spels immediately with a pair of pincers lest the wood grow soft and swell, and so will not be drawn, then must you cut your hive.

STRAINING HONEY.—Let no fire come near your honey, for fire softeneth, weakeneth, and hindereth honey from purging. Break your combs small when the dead empty combs are parted from the laden combs into a sieve borne over a great bowl or vessel with two staves, and so let it run two or three days. The sooner you run it up the better will it purge. Run your swarm honey by itself, and that shall be your best. The older your hives are the worse is your honey.

VESSELS.—Usual vessels are of clay, but after wood be satiated with honey (for it will leak at first, for honey is marvellously searching, though thick, and therefore virtuous), I use it rather because it will not break so soon with falls, frosts, or otherwise, and greater vessels of clay will hardly last.

When you use your honey, with a spoon take off the skin which

it hath put up. And it is worth the regard that bees thus used, if you have but forty stocks, shall yield you more commodity clearly than forty acres of ground, and thus much may suffice to make good housewives love and have good gardens and bees. *Deo laus.*

[From an old book called "A Way to Get Wealth," printed by T. B. for Hannah Sawbridge at the Bible on Ludgate Hill, London, 1683.—A KILKENNY BEE-KEEPER.]

OUR LETTER BOX.

AN INJURED LARK (J. H., Glasgow).—The prostrate state of your Lark has, no doubt, been brought about through injury and bruises it sustained whilst fluttering about the room in which it was suddenly let loose. Whilst the bird remains in its helpless condition let it be kept quiet, which may be aided by covering over the cage with some light material. Place some soft hay upon the cage bottom, besides a fresh grass sod for the bird to rest upon. So place the usual food that it may be of easy access. A few mealworms may tempt the invalid, but as you say your Lark prefers egg so continue the diet. In a few days the bird may regain strength. The Lark certainly must have been much frightened with the sudden transition from the cage to the open room. The better plan would have been to have put the bird and cage in the room at night time with the door of the cage open. A fresh grass sod with a supply of food should have been placed near the front of the cage, so that when daylight began to dawn and the bird required its morning's meal, it would have gradually gained a knowledge of the open door for egress. Bechstein's "Chamber and Cage Birds," published by Routledge and Sons, price 3s. 6d., will afford you ample information as to general treatment, but not such treatment as your unfortunate frightened Lark sustained.—G. J. BARNESBY, Derby.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.						Rain.
1878.	Baromet- er at 39" and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.				
April.		Dry.	Wet.			Max.	Min.	In sun.	On grass			
We. 17	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.		
Th. 18	29.740	54.2	50.4	N.W.	47.8	60.7	46.3	105.0	42.5	0.266		
Fri. 19	29.764	46.6	46.6	W.	47.9	60.6	41.6	93.7	37.9	0.028		
Sat. 20	30.672	30.3	49.9	S.	48.0	64.3	43.4	106.0	38.3	0.164		
Sun. 21	29.515	54.8	54.4	S.E.	49.4	57.5	49.7	80.7	48.4	0.410		
Sun. 21	29.657	51.8	48.4	S.	49.0	61.4	48.0	107.0	41.8	0.073		
Mo. 22	29.863	50.8	48.7	N.E.	49.3	61.8	45.1	96.6	42.8	—		
Tu. 23	29.628	54.3	50.3	S.E.	49.3	60.4	45.6	85.4	43.8	0.070		
Means	29.691	51.8	50.0		48.7	61.0	45.4	97.9	42.2	1.009		

REMARKS.

17th.—Fair morning; heavy rain from 2.15 to 2.52 P.M.; wet evening.
18th.—Fine warm pleasant day.
19th.—Wet misty morning; fine from 11 A.M., very fine afternoon; damp night.
20th.—Wet close morning, dark for a few minutes, and heavy rain at 10.13, 0.06 fell in 7 minutes; finer in afternoon, misty evening and damp.
21st.—Dull morning, sunny afternoon, very fine evening rain at 10.45 P.M.
22nd.—Wet morning; fine after 10 A.M.
23rd.—Overcast at times, but fine day; very fine calm evening.
A fine mild spring week. The thunderstorm on the 17th passed much to the south of this station, and along its path was accompanied by a heavy fall of hail.—G. J. SYMONS.

COVENT GARDEN MARKET.—APRIL 24.

OUR market has been at such a standstill owing to the holidays that all classes of goods have experienced a serious decline, but being temporary we have made no alteration in quotations.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	1	0	0	0	Melons.....	each	0	10	0
Apricots.....	dozen	0	0	0	Nectarines....	dozen	0	0	0
Chestnuts.....	bushel	10	0	0	Oranges.....	100	3	0	0
Currants.....	1	0	0	0	Peaches.....	dozen	0	0	0
Figs.....	dozen	0	0	0	Pears, kitchen..	dozen	1	0	0
Filberts.....	1	0	0	0	Pears, dessert..	dozen	3	0	0
Gobs.....	1	0	0	0	Pine Apples....	1	0	0	0
Gooseberries..	1	0	0	0	Plums.....	1	0	0	0
Grapes, hothouse	1	0	0	0	Raspberries....	1	0	0	0
Grapes, new....	1	0	0	0	Strawberries..	1	0	0	0
Lemons.....	100	6	0	0	Walnuts.....	bushel	5	0	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	dozen	2	0	0	Mushrooms....	pottle	1	6	0
Beans, Kidney forced	100	1	0	0	Mustard & Cress	punnet	0	2	0
Beet, Red.....	dozen	1	0	0	Onions.....	bushel	2	6	0
Broccoli.....	dozen	0	0	0	Pickling.....	quart	0	4	0
Brussels Sprouts	1	0	0	0	Parsley.....	doz. bunches	2	0	0
Cabbage.....	dozen	1	0	0	Parsnips.....	dozen	0	0	0
Carrots, new....	bunch	2	0	0	Potatoes, frame	1	0	0	0
Capicums.....	100	1	0	0	Potatoes.....	bushel	3	6	0
Cailliflowers...	dozen	2	0	0	Kidney.....	bushel	5	0	0
Celery.....	dozen	1	0	0	Radishes.....	doz. bunches	1	0	0
Coleworts.....	doz. bunches	2	0	0	Rhubarb.....	bundle	0	6	0
Cucumbers.....	each	0	0	0	Salsify.....	bundle	0	2	0
Endive.....	dozen	1	0	0	Scorzoneria....	bundle	1	0	0
Fennel.....	bunch	0	0	0	Seakale.....	basket	1	6	0
Garlic.....	1	0	0	0	Shallots.....	1	0	0	0
Herbs.....	bunch	0	0	0	Spinach.....	bushel	2	6	0
Lettuce.....	dozen	1	0	0	Turnips, new..	bunch	2	0	0
Leeks.....	bunch	0	0	0	Veg. Marrows..	each	0	0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	MAY 2-8, 1878.	Average Temperature near London.			Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h.	m.	h.	m.	h.	m.	h.	m.			
2	TH	Royal Society at 8.30 P.M. Linnean Society at 8 P.M.	62.5	39.1	50.8	4	32	7	22	3	56	7	58	0	3	9
3	F	Royal Institution (Anniversary) at 2 P.M.	61.8	40.3	51.0	4	30	7	22	4	17	9	13	1	3	16
4	S		62.4	38.4	50.4	4	28	7	25	4	47	10	23	2	3	21
5	SUN	2 SUNDAY AFTER EASTER.	62.5	39.0	50.3	4	26	7	27	5	29	11	24	3	3	27
6	M		61.3	38.9	50.1	4	25	7	28	6	25	morn.		4	3	32
7	TU	Royal Horticultural Society—Fruit and Floral Com-	59.1	40.0	49.5	4	23	7	30	7	35	0	12	5	3	38
8	W	Society of Arts at 8 P.M. [mittees at 11 A.M.]	58.9	39.0	48.9	4	21	7	31	8	44	0	48	6	3	40

From observations taken near London during forty-three years, the average day temperature of the week is 64.0°; and its night temperature 39.2°.

HARDENING OFF.

BY this term is understood the gradual inuring of plants to a lower temperature so as to fit them to stand outside with little or no protection. For the propagation of half-hardy plants in winter or early spring by cuttings or seed it is generally necessary to employ artificial heat or a close atmosphere, and plants thus raised are for a time more delicate than those raised outside or in cold frames at a later and warmer period of the year. Even hardy plants when grown indoors become almost as tender as the ordinary occupants of the stove; and that this inability to stand cold is not got rid of as quickly as many people would seem to imagine, is, I think, proved by the fact that half-hardy plants which have been out all summer will bear with impunity a temperature many degrees lower in the autumn than they will in spring; in fact what will kill in the one case will scarcely leave a mark in the other.

I fear I am not able to teach much on this subject by anything I can write, but there is one particular agent in the hardening-off process which I wish to draw attention to, as I think it is not sufficiently taken into account. It may appear a little paradoxical to some when I say that the sun is one of the most important agents in preparing a growing plant to withstand frost. Once it will bear bright sunshine in the open air without flagging or discoloration a great deal has been done to fit it for a low temperature. We hear of plants being hardy in one place and tender in another, although the temperature in the latter place may not range so low as in the former. Very often the difference is caused solely by the difference in the amount of sunlight. Certain it is that plants grown under bright sunshine and in a dryish atmosphere are much hardier than those grown in comparative shade and a lower temperature. It will be in the recollection of a goodly number of your readers that less than twenty years ago we had two very severe winters, when the mercury was more than once down to zero. One of these severe winters followed a hot summer—I think it was the memorable one of Donati's comet; the other followed a summer as sunless as that of last year, with a still greater rainfall, and the difference in the effect of the two seasons was remarkable. In the former case the damage to hardy plants was comparatively small, but after the wet summer the frost played sad havoc with trees which had stood almost unscathed for forty or fifty years.

Many people, I think, get into a muddle in spring, and prevent all possibility of anything like method in their hardening-off arrangements, by mixing up hardy, half-hardy, tender, and very tender plants together. They say they have no room to do otherwise. Well, nobody has any room; there is no room at Chatsworth or Kew! But why do so many rear plants in February, March, or even earlier, which cannot be placed outside before midsummer, and would grow far better if not propagated till May?

It is true there are some few very tender plants—Dahlias, for instance—requiring to be grown on to a good size, and

therefore must be propagated early; but rearing such things as *Alternantheras*, *Coleuses*, *Heliotropes*, *Ricinus*, *Ageratums*, *Iresines*, *Zea*, or *Perilla* by thousands before May is a waste of time and labour, as well as a source of injury to most of the plants grown. We cannot of course in gardening matters do only one thing at a time or our practice would be a much more simple affair than it is at present, but it is well to go as far in this direction as we can with safety in all branches of our work by concentrating our energies on a few important things at a time, getting them off our hands, and consequently off our minds, to be followed in due course by other plants.

In the matter of propagating for the flower garden I practise and recommend beginning with such plants as will bear a few degrees of frost, as *Petunias*, *Verbenas*, *Alyssums*, *Mesembryanthemums*, and *Lobelias*. All of these will stand outside in a sheltered position in the southern part of England after the end of April, if they have been properly prepared for it. I will attempt to describe what I mean by being "properly prepared." It is not enough to merely move cuttings as soon as rooted into a lower temperature and then after a time to place them in a sheltered position outdoors. There are times and ways to do this. A cutting of a softwooded non-succulent plant should commence growing as soon as it is inserted, and if when it becomes a plant it is to make the best possible progress it should not be allowed to receive a check in any way. Unless, therefore, the hardening-off is done in a rational manner the plant is never more than half a plant. I will again take the *Verbena* as an example, it being at once one of the easiest of all plants to grow, and is perhaps the worst grown. We will suppose the stock plants are clean and vigorous, and are in a close pit or frame in which there is a little warmth from fermenting material, and the cuttings are in a fit condition to take off; there is even then a right and a wrong time to take them. Mr. Superficial says, "Wait till near the middle of the day when the sun is warm, and it will then do no harm to take the lights off." Well, if the frame has been kept quite close this is exactly the wrong time to do it, because the difference between the outer and inner atmosphere is so much greater now both in temperature and humidity than it was in the morning, that the plants will receive such a check as they will not out-grow all day. Either the cuttings should be taken early before the sun has raised the temperature, or air should be given early to prevent its rising too much till such time as the work at the frame has been finished, when it can be shut up, sprinkled with warm water from a syringe, and growth will at once commence again with increased vigour. Even opening a close dung-frame for a moment in the middle of a bright day will often inflict permanent injury on its occupants.

This hint about the time of taking off cuttings is the key to all the rest I have to say about hardening off. Never wait till the temperature of a house or frame has risen considerably before moving plants or cuttings. The time for all shifting of tender plants from a warm place to one with a little lower temperature is in the morning when not frosty, or during dull mild days at any time. In the morning

the hothouse may be 55° or 60°, and the outer air 35° to 40°—a difference of 15° to 20°. In the middle of the day the temperature of the house may have risen 30° or even 50°, while the outside air will not have risen in the same proportion, and consequently the risk of a check is much greater, especially if there is just a suspicion of nor-easter at the time. Finally, choose a time when what is known as a soft air prevails to place the plants outside. This condition of the air is almost independent of temperature, though not quite so much so of humidity or direction of the wind. I think a man should have just a touch of sciatica or "rheumatics" before he can quite master the subject of hardening-off or giving air.—WM. TAYLOR.

MARÉCHAL NIEL ROSE.

"I WISH I could say something more strongly in favour of this unique Rose, but the truth is it surpasses description: wherever a glass structure is erected for flower-growing Maréchal Niel should have a place in it." These are the words of your correspondent, "M. M.," on page 301, and with which I think every gardener in Great Britain will heartily concur. It is indeed a grand Rose, the grandest of Roses, and blooms with such freedom early in the season that it surpasses all others. I have found, like your correspondent, that it grows most rapidly under glass if left to its own will, and the only attention it requires with regard to pruning is merely thinning-out some of the weaker branches wherever they have become too crowded; but instead of planting it on its own roots I am favourably disposed to those plants worked on the common Briar stock. A Maréchal Niel budded on the Briar and planted outside any glass structure and the branches brought inside, much in the same way as Vines are introduced inside a vinery, will grow luxuriantly and yield a brilliant return of golden flowers. This, of course, prevents the extra work and sometimes inconvenience of preparing a border inside to grow it in. I planted a Maréchal Niel in the outside border at the back of a vinery last spring, and during March and April this year I was able to cut a large quantity of fine blooms, the only drawback being that the heat required for the Vines somewhat hastened the decay of the Roses.

The best place to grow this Rose is undoubtedly in a cool house, where it would receive just sufficient shelter from the inclemency of our spring months. In such a place it would have sufficient time to develop its massive and gorgeous yellow blooms. The examples of this Rose sent to the London spring shows by Mr. Walker of Thame, Oxfordshire, clearly tell us the magnificent standard this unique flower is able to reach.

I have yet another place to suggest to your readers for the protection and advancement of this Rose—namely, in conservatories. Many of these structures are so useless as to make the name almost a misnomer. They are often built either to harmonise with the architecture of the residence or made to utilise some ugly out-of-the-way corner, to please the fancy of the architect rather than for the protection and preservation of plants in bloom. In many of these lofty buildings Maréchal Niel will revel in all its glory if it can be only kept clear of green fly. I have now for several years grown a plant on the Briar in a lofty conservatory, and annually it has carried magnificent blooms; but there are drawbacks here in attaining success. From the close proximity of these buildings to the drawing or other dwelling rooms tobacco smoke cannot be employed to kill green fly, which is sure to put in appearance, and oftentimes a gardener is unable to syringe as heavily as he would like. This being the case, I have generally surmounted the difficulty and eradicated the enemy by the tolerably free use of tobacco powder and a heavy syringing now and then. The quantity of glorious blooms and the great service they render when cut flowers are in demand will amply repay any extra labour that may be required in these lofty places to grow this Rose to perfection.

We sometimes have the benefit of good flowers from a south or west wall; but the truth is, and it must be told, that the Maréchal is too precocious for our unsettled climate for us to depend on its outdoor cultivation alone. It is one of the very hardiest of Roses, but our mild and wet Januaries and Februaries start it in growth; then frost frequently occurs, and the tender shoots, unable to stand against it, become shrivelled up as if burnt with a fire. Plant Maréchal Niel in all available situations—north, south, east, or west—under glass, for wherever a glass structure is erected for flower-growing (I

again re-echo the words of "M. M.") "Maréchal Niel should have a place in it."—J. W. MOORMAN.

VEGETABLE CULTURE.

CHAP. XVI.—SPINACH AND SALSIFY.

SPINACH is seldom cultivated in cottage gardens. It is not supposed to contain much nutriment or possess much value as a vegetable, but this is not strictly true. Spinach is not only a useful vegetable, but it is exceedingly easy to cultivate, and it gives a large return for the space and attention it is necessary to give it. Still, it is not considered one of the principal kitchen-garden crops, yet a supply is always requisite in all large gardens and households. Unless for winter supply we never grow our Spinach on ground that could be cropped with anything else. When the early Peas are sown on the borders the rows are generally 6 feet or more apart, and Spinach is grown between them. It generally takes about six weeks to be ready for use from the time of sowing. The Peas are generally sown every ten or twelve days, and Spinach is always sown at the same time, and a succession is secured. The crop of Spinach is most satisfactory in a cool moderately rich soil. In hot shallow soils the plants seed quickly, and this is undesirable. We sow the seed very thinly, and do not thin the plants until they are fit for use, and at the first gathering the crowded plants are pulled out by the roots and used. This gives more room to those left to develop their leaves, and the larger these grow the better. As soon as the plants show signs of seeding they should be drawn out. From February until the beginning of July seed may be sown every fortnight or three weeks. When it is not sown between Peas it may be sown between any bush fruits, Raspberry rows, Rubus, or, in fact, anywhere, as it is more benefited than injured by shade in summer. It may be sown in narrow drills, but I prefer sowing it the width of a spade, as the plants do not become crowded so soon when sown in wide rows.

The winter Spinach crop requires some care to do it properly. Summer Spinach seldom dies prematurely, but winter Spinach often does, and that frequently when it is becoming fit for use. The leaves turn yellow and the plants die. We never had very much of it go off like this, but we have had a few rows affected, and it appears to be a small grub that eats the roots. Soot and lime forked into the soil before sowing the seed is a good preservative of the crop. While summer Spinach delights in a shaded place, the winter crop must have a fully exposed situation; an open south border is a good place for it. We generally sow ours on the part where the Early Horn Carrots were growing, and we find it succeed well after that crop; but it does well after Potatoes, Cauliflower, &c. The first sowing for winter should be made about the end of July, another the end of August, and the last at the end of September. In each case the ground should be dug over before sowing the seed, and a little manure added when the soil is poor. The seed should be sown in narrow drills 15 inches apart, and the hoe must be run between the rows frequently as soon as the rows can be seen and the soil is dry. We never thin the plants of our winter Spinach, and it always stands the weather well, but the large leaves are constantly gathered from it, and where this is not done the plants should be thinned out to 3 inches apart, as there is no doubt growing the plants packed together makes them tender and liable to decay. By sowing Spinach at all the times named a supply of it may be secured all the year round. We are trying some new sorts of Spinach this year, and we have tried some before, but for the main crops we still depend on the round variety for summer and the prickly sort for winter.

SALSIFY.

This is another vegetable not generally cultivated, but it is a valuable addition to our stock of vegetables, and where a great variety of dishes are wanted, as they are in most places, Salsify is quite indispensable in winter. It generally takes the place of a second-course dish at the table of the opulent, but with ordinary people it is cooked like Parsnips and used in the same way. The roots run into the ground like Carrots, consequently the soil should be free, open, and deep to grow them well. We generally grow our Salsify on the same quarter as the Beetroot, and all the ground is prepared alike. The seed should not be sown until the first or second week in May. When sown before this many of the plants seed in autumn. Fifteen inches apart is quite wide enough for the rows. The plants should be left 4 inches apart in the rows,

and the surface of the ground must be kept hoed and free from weeds. In October the roots should be taken up and stored amongst sand in a cool shed or cellar. Any indication of growth must be rubbed off, and decayed roots must be removed on their first appearance.

Scorzonera is another vegetable much resembling the Salsafy. Their culture and everything connected with them are so much alike that what applies to the one applies to the other.—A KITCHEN GARDENER.

SHOWING AURICULAS.

THE National Auricula Society is established and supported with the object of both improving and extending the cultivation of this charming Alpine flower. There can be no doubt whatever that the fine southern Show held in the Crystal Palace last year caused renewed interest being taken in the flower; and the still finer display of last week could not fail to give a still further stimulus to Auricula cultivation. Old growers and exhibitors are prompted by such displays to produce still better examples of cultivation, and new growers are encouraged to follow, but it must necessarily be "afar off" the present prizetakers and great exhibitors. It is with the object of reducing the distance that at present exists between old and new growers, or at least for preventing it becoming wider, as it must do under the present arrangements, that I venture to make a suggestion to the Committee of the National Society, which may or may not be worthy of official consideration.

It is self-evident that the great bulk of new Auricula growers must commence the culture of the flowers with not only small plants but a limited number of varieties, and these not of the most celebrated sorts. Of the dozen or two of plants of the beginner's it is not possible that all of them can be had in exhibition trim on a given day, and consequently unless some special provision is made to meet the case of such new growers they must wait for years before they can compete successfully. Most growers for obvious reasons commence with Alpines, or at least these are the most numerous in their little collections. Why not, then, have a mixed class of shows and Alpines of six or twelve plants, or both, for exhibitors who have not taken a prize say previously to 1877? In these "new exhibitor" classes let a winner of a first prize be prohibited from exhibiting in the same classes the following year, but leave the honour open for others. By this means direct encouragement would be given to new growers, and there would be a gradual and certain increase in the number of exhibitors. The plan of mixing the shows and Alpines is permitted on a large scale for large growers in the class for fifty plants, and surely, therefore, it would not be wrong to provide a smaller class of the same nature for smaller growers, and exclusively for new exhibitors.

It is well known that there is no possibility of amateur growers of Roses in pots competing with even a remote chance of success in the classes in which Messrs. Turner and Paul exhibit, and the chances of new Auricula exhibitors are equally hopeless when such great growers as Messrs. Horner, Douglas, Turner, and Simonite enter the lists against them. Give the novices a chance by providing classes of the nature suggested, and the number of growers and exhibitors will speedily increase, and so one of the chief objects of the National Society will be attained.

No doubt new and small growers have a chance of securing a fifth or sixth prize in the smaller classes now provided, and it is probable that they would endeavour to secure them if at the same time they had a reasonable hope of attaining a higher place in some other classes. If fifth and sixth prizes were offered for Roses in pots, stove and greenhouse plants, and Orchids, would a grower like Mr. Douglas compete for them if he knew he had no possible chance of securing a higher position? I trow not. In great plant exhibitions and shows of cut Roses a distinction is made between nurserymen and amateurs, but in the case of Auriculas this is not practicable; a distinction of the nature suggested is, however, not only practicable but is submitted as reasonable. It could not possibly injure the great growers, while it would directly encourage small amateur exhibitors. It is possible, too, that an increase of subscribers would be gained to the Society if special provision were made for new exhibitors, and it is not beyond the bounds of probability that some of the present subscribers would make a slight addition to their subscriptions for supporting a class or classes of the nature suggested.

Will the Committee of the National Society consider the matter? It might perhaps be deemed right to permit any growers who have not won a first prize since 1876 to compete in the extra classes, and such exhibitors the new growers would not hesitate to meet; but they are not likely to presume to meet the great guns who sweep all before them. It is pretty well understood that small amateurs' collections of Auriculas are being established, the very class that the Society is desirous of encouraging, and one way of doing so in a practical manner is by offering greater inducements for them to exhibit than at present exist.—EMBRYO.

PRUNING AND TRAINING PYRAMIDAL FRUIT TREES.

THE system of growing fruit trees in the conical or pyramidal form has for many years engaged the attention of gardeners and amateurs, and it is undoubtedly one of the most profitable modes in which to grow most kinds of hardy fruit. Many and conflicting are the modes of pruning recommended by various writers. One advocates close summer pinching, another practises severe pruning in the winter, and a third recommends shortening the shoots at midsummer, and evidence may be afforded that each plan is right.

In the formation of a fruit garden the first thing to be taken into consideration is site, which should be properly drained and trenched a year before the trees are planted. The next is to obtain good and well-trained trees from a nursery. If the trees have been transplanted several times they will have abundance of small roots, and every tree will be almost sure to grow. They should not be planted too deep, and should be securely staked to prevent them being blown about by the wind. The first year they should not be pruned but allowed to make all the growth they can. The shape of the tree should be the main thing to keep in view, and should any branches be inclined to grow in a wrong direction they can be brought right by tying them in the direction required while they are young, always keeping the lowest branches in advance of the upper ones. When the trees have made one year's growth they may be cut back considerably, keeping in view, as I said before, the shape of the tree. If the tree has made a strong growth it is not advisable to cut too hard, provided it has sufficient branches to form the framework of the future pyramid; if, on the contrary, it has made a short weakly growth it may be cut back closer and not be allowed to bear fruit too soon, otherwise it may become stunted. Presuming it has made a strong growth, the leading shoot should be shortened about a foot or 15 inches and the other branches in proportion. During summer if any shoots are formed that are not required to form the regular branches of the tree they should be removed, or shortened, as the case may be, but do not stop the main branches unless any are inclined to outgrow the others. Trees may be grown in this manner to the height of 12 to 15 feet.

In the pruning of pyramidal fruit trees of all sorts care should be taken to encourage the formation of natural fruit spurs in preference to artificial ones; this is the rock on which many a young gardener and amateur have split by following the orthodox system of summer pinching, as it is called. If a free growth is allowed during the summer and the branches kept thin, admitting a free circulation of sun and air among them, the wood will ripen properly, and at the base of every leaf a bud is formed which will ultimately become a natural fruit spur. In the case of some varieties, such as the Jargonelle and Williams' Bon Chrétien Pears, it will be found that the terminal bud of one year's growth will be a fruit or bloom bud; in such a case it will be advisable to pinch it out, which will strengthen the side buds, and in the following year they will become natural fruit spurs.

Among Apples and Pears certain sorts assume naturally very different forms of growth. Some grow close and compact, some horizontally and crooked, while others are slender and thin in their growth, and are indisposed to put forth lateral shoots—the Winter Nelis is of the latter class—in such a case it will be necessary to prune closer than in the others at the winter pruning. If the thinning of the shoots is attended to in the summer, and gross wood in the middle of the tree kept under, winter pruning will be reduced to a minimum. Trees brought into a bearing state by the above system of pruning and training will not require root-pruning so often as if pruned on the cut-and-back system, which unfortunately prevails among some in the present day. Root-pruning will become necessary in

some cases and in some soils more than others. When it is necessary to be done the trees should be lifted carefully with a ball of earth attached to their roots if possible, and the station of the tree well rammed, and the tree fresh planted with its base well above the surface. Care should be taken to keep it firm and the surface mulched with rough manure. In digging fruit gardens a spade should never be employed, and the ground should not be dug deeply. Top-dressings slightly forked-in help to keep the roots near the surface. It can easily be ascertained when a tree requires root-pruning by its making late growth and the wood not properly ripening, which is one great cause of canker.

Thinning the crops: It is common with most people to remark that the Apple and Pear bear well and the reverse in alternate years. The cause of this to a great extent is by allowing the trees to exhaust themselves by carrying more fruit in one season than they can well bring to maturity. Were the fruit judiciously thinned as soon as it is fairly set with something of a like care we bestow on our Peaches and Grapes under glass, our Apples and Pears and other hardy fruits would not only yield us year after year an ample supply of fruit, but that fruit would be of a very superior quality. Every deformed and undersized fruit should be removed with a pair of fine-pointed scissors. Some attention in this respect is bestowed on wall-fruit trees, such as Peaches and Apricots; in fact, if not thinned the crop in most cases would be worthless and the trees would be very short-lived. By early thinning the fruit another important end is gained—namely, the destruction of thousands of insects, the eggs of which are deposited in the embryo fruit.—W. GRAVES.

NORTHERN AMATEURS.—No. 2.

NOTES ON PICOTEEES AND CARNATIONS.

THE subject of these notes—Mr. Robert Scott, Oystershell Lane, Newcastle-on-Tyne—has devoted about forty years to the cultivation of the Picotee and Carnation, and as he has scarcely yet lived half a century an idea is afforded of how early he must have begun his career as a florist. This was, perhaps, owing to his father being an enthusiastic cultivator, and who was for forty years a stern representative of the intelligent northern florist. Being a cordwainer by trade, and possessing a sensitive nature and a refined taste, flower culture afforded Mr. Scott congenial relaxation from his confining duties. In his day, fifty or sixty years ago, the northern florists were very enthusiastic, and what we would term a "horticultural tournament" was in existence, and Mr. Isaac Scott did actually enter into an agreement with Mr. Hills as partner, against Mr. Henry Langley (cabinet maker) and Mr. Morris (pitman). The contest was to be decided by the number of prizes obtained at a series of shows, which would bring on the competition table almost all the florists' flowers then grown—Picotees, Carnations, Pinks, Polyanthus, Hyacinths, and Tulips. Tulip culture was then quite a mania. They were general favourites amongst our northern pitmen; some of them grow as many as five hundred, and some of these bulbs cost nearly or quite £3 each. This makes us almost wonder whether we still retain the same enthusiasm for flowers as did the preceding generation. Mr. Isaac Scott's Tulip garden was quite a furore amongst our northern cognoscenti. Every means was utilised and much cultural skill employed to bring the flowers to perfection. Tents were made for them large enough for the visitor to walk upright, and also globes were employed. Mr. Scott used to find his visitors so numerous that some means had to be adopted to limit them, and a price for admission did not prevent his numerous friends from coming for edification and friendly criticism.

For florist flowers the principal exhibitions were held in the Music Hall, Blackett Street, Newcastle, and here Mr. Isaac Scott won the silver and gold medal respectively for Pinks, Picotees, and Carnations. Amongst his favourite flowers in Picotees and Carnations were Mr. and Mrs. Campbell, Bailey's Beauty, Grace Darling, Rosette, Hutchinson's Lady Ridley, Butt's Lord Rodney, Martin's Splendid, and Harvey's Smuggler. These were a selection with which he generally succeeded in gaining honours. We have a little departed here from our immediate object in giving the history of Mr. Scott, sen., but if so it has been for a twofold idea. There is always a pleasure in recording the deeds of the valorous dead, and also to give some insight in the early training Mr. Robert Scott would receive under such a mentor.

Embracing the same trade as his father, attending on him

at all the local shows, and seeing every little secret in staging his flowers, besides naturally inheriting the keen perceptive qualities of a florist as well as studious and exhaustive patience, and confining himself nearly to the exclusive cultivation of the Picotee and Carnation, it would almost be superfluous on our part to say that as a grower of these flowers he would be hard to beat. His competition has been almost confined to the north, but his wish has been strong to "measure blades" with the southern exhibitors, but there is the unfortunate circumstance that their flowers do not bloom simultaneously.

The method of culture adopted by Mr. Scott is quite simple. He employs fresh turf, to which is added cow dung and horse manure thoroughly decomposed; he makes the beds in September, and plants during the same month the plants that were layered at the beginning of August or in July. Some he keeps in frames during the winter; these are planted in February. By this means he secures an earlier and later bloom. When the flowers are beginning to form pod he waters with clean water, and also shades with glass globes lined inside with white paper. For Pinks he uses a little stimulant in the shape of guano water. His success, he contends, lies in the attention that is bestowed upon them, visiting as far as twenty times a day, and attending to their wants as early as four in the morning. For such attention he has reaped a rich reward by never having had to succumb to any exhibitor. He has likewise been the means of bringing many local exhibitors out, which have reaped much benefit from his experience and advice. Of some of their floral exploits we hope to be able to say something hereafter. Appended is a selection of flowers of Picotees and Carnations which he considers the best for exhibition purposes.

CARNATIONS.—*Scarlet Bizarres*: Dreadnought, Admiral Curzon, and Sir Joseph Paxton. *Crimson Bizarres*: John Harland, Warrior, and Rifleman. *Pink and Purple Bizarres*: Sarah Payne, Lord Falconbridge, and Dodwell's Fanny. *Scarlet Flakes*: Clipper, Annihilator, and Superb. *Rose Flakes*: Flora's Garland, John Keet, and James Carter. *Purple Flakes*: Juno, Dr. Foster, and True Blue.

PICOTEEES.—*Rose Edges (Light)*: Miss Wood, Empress Eugénie, and Cynthia. *Heavy*: Edith Dombrain, Flower of the Day, and Miss Rodan. *Light Purple*: Mary, Amy Robsart, and Nymph. *Light Reds*: Thomas William, Mrs. Bower, and William Summers. *Heavy Reds*: Robert Scott (Flowdy), Mrs. Dodwell, and J. B. Bryant.

PINKS.—*Delicata*, Device, Bertram, Godfrey, Miss Nightingale, Ceres, and Criterion.—B. C.

PORTRAITS OF PLANTS AND FLOWERS.

DENDROSERIS MACROPHYLLA. *Nat. ord.*, Compositæ. This is a small tree about 13 feet high. Flowers bright orange.—"The genus *Dendroseris* is confined to Juan Fernandez group of islands, and the present species inhabits both the principal island and Masafuera, where it was discovered by Bertero in 1830, growing on the mountains, and flowering in May. The *D. macrophylla* was imported by Messrs. Veitch through their collector Mr. Downton, and it flowered at their nursery in August, 1877."—(*Bot. Mag.*, t. 6353.)

SPATHOGLOTTIS PETRI. *Nat. ord.*, Orchidaceæ.—"It is a native of the South Sea Islands, from where it was introduced by Mr. Peter Veitch. Though there are several Pacific Island species of the genus in the Herbarium none agrees with this in the very marked character of the deciduous bracts; these organs in the New Caledonian, Fijian, Malayan Archipelago, and Indian species being remarkably persistent, even long after the ripening of the fruit."—(*Ibid.*, t. 6354.)

ISCHARUM ANGUSTATUM. *Nat. ord.*, Aroideæ.—"This species," says Sir Joseph Hooker, "was found by myself in Syria in 1860, but I cannot tell exactly where, for the tubers were collected in September without flowers, and put in a bag with many other roots that I dug up as I journeyed along, and to whose generic name even I had then no clue. It flowered at the Royal Gardens first in December, 1861, and formed its leaves in the following January in a cool frame. I fail to identify it with any described species, and I find nothing like it in the Herbarium."—(*Ibid.*, t. 6355.)

FEVILLEA MOOREI. *Nat. ord.*, Cucurbitaceæ.—"Fevillea Moorei differs from the other species in its being quite glabrous, having entire three-nerved leaves, and very large flowers with short stamens; the leaves are obscurely biglandular at the base on the margin close to the petiole. The male flowers alone are known, which are very deciduous, the pedicel being

jointed in the middle. I have named it after my friend Dr. Moore, F.L.S., whose eminence as a scientific horticulturist is as well known as his garden is appreciated for botanical interest and beauty."—(*Ibid.*, t. 6356.)

ARDISIA OLIVERI. *Nat. ord.*, Myrsinæ. Native of Costa Rica. Flowers rose-coloured.—"By far the handsomest species of the genus hitherto cultivated in England, introduced by M. Endress into Messrs. Veitch's nursery, where it flowered for the first time in July, 1876."—(*Ibid.*, t. 6357.)

NATIONAL AURICULA SOCIETY.

CRYSTAL PALACE (SOUTHERN SHOW), APRIL 25TH.

THANKS to the energy of Mr. Dodwell and the zeal of both northern and southern growers another great field day of the Auricula has been held, an opportunity afforded of meeting the lovers of this beautiful flower from all parts of the compass, and a delightful time for comparing notes, shaking by the hand of many a fellow lover of the flower; and as one of its oldest admirers I have to tender to Mr. Dodwell and the liberal patrons of horticulture by whom he was supported my humble thanks, all the more disinterested as I was not able to enter into the fray as I have been wont to do. As, however, I hope my collection is in a fair way of recovering from the attacks of its bitter enemy the woolly aphid I hope another year may see me again as a competitor.

In recording my opinion of the Exhibition I cannot say that I think in the quality of the flowers exhibited there was the same high standard attained as last year. I in vain looked round for such a George Lightbody as Mr. Horner exhibited last year, or such a Lancashire Hero as Ben Simonite's; while in a large number there was a roughness that indicated either a strong use of stimulants or a condition of climate that was prejudicial to their opening, while there was not much absolutely new or valuable in the seedlings exhibited. One, indeed, shown by Mr. Douglas (Silvia) was a first-rate flower. It had defects as nearly every Auricula has—the paste was too scolloped and the body colour too small, but it was a flower of great refinement, and will, I have no doubt, be found a valuable variety. Indeed I see no reason why, if science and care be brought to bear on the hybridising of the Auricula, we should not have new varieties to take the place of many we are obliged to put up with for want of better.

Amongst the green edges Booth's Freedom, a flower rarely seen, was exhibited in good condition by Mr. Horner, but was not so smooth as I have seen it. Talisman, a seedling of Ben Simonite's, bears considerable likeness to it, and as it is apparently a good grower will be a valuable addition. Prince of Greens, which I never consider a superior flower, was not shown in such good condition as last year. It has a tube, which is fatal to any flower, and especially to a green edge, and its habit is frequently elegant. It has indeed a grand edge, and that is its great point, but I shall not break the tenth commandment as far as it is concerned. One of the very best of green edges, Imperator, I do not recollect to have seen, but Leigh's Colonel Taylor in one or two instances was very fine. Page's Champion was good, Alderman Wisbey coarse.

In grey edges George Lightbody still holds its own as the very best not only in its class but the best Auricula in growth, and Mr. Horner's plant of it carried off the prize as the premier flower shown, but, as I have said, it was not shown as well as last year. Alderman Brown was well exhibited; indeed in one class where it and George Lightbody were shown together they were as nearly alike as possible. Lancashire Hero still holds its place, and they are a worthy trio. Alexander Meiklejohn is doubtless a very fine variety, but it will not, I think, displace either Lancashire Hero or George Lightbody. An old flower, Sir Henry Havelock, was well exhibited by Mr. Turner, and although somewhat cupped was as shown a very refined and good flower.

Whites as usual were weak. Mr. Simonite's new flower, Frank Simonite, is an acquisition; but it is somewhat curious that, despite all that has been said, Summerscales' Catharina, an old flower, was placed first in the class-showing. Smiling Beauty is no doubt a lovely flower, but the colour of the edge is not so white as in Catharina or Taylor's Glory, which latter, however, is so early as never to be of much use for exhibitors. Traill's Beauty, though classed as a white, is too grey. Walker's John Simonite, exhibited by Mr. Horner, was quite one of the best in this section.

In selfs the palm must be given for smoothness and depth of colour to Pizarro, which was well shown, as was also a dark seedling of Ben Simonite's. Charles James Perry was also finely exhibited. Ellen Lancaster was also good; while some of the other selfs, such as Blackbird, Mrs. Smith, and Lord Clyde, were in fair condition.—D., Deal.

AFTER the above critique by the veteran florist, which is not far off the mark, we have little to record beyond submitting the names of the prizewinners and the varieties composing their collections. Indeed the arrangements of the Show were such as to

preclude an examination of the flowers in a manner that in the interests of the public is desirable. One of the printed conditions of the Show states explicitly that "the plants must be ready for the Judges by 10 A.M.;" but the staging of the plants was not completed until upwards of an hour after that time, and before the Judges had completed their duties the public rush occurred. Notetaking in the thick of a Crystal Palace crowd results in a series of hieroglyphical characters that are simply undecipherable. A glance at the Show, however, was sufficient to perceive that it was a display of great magnitude, the Auriculas occupying six tables, each about 20 feet in length, one table being devoted to Polyanthuses and two others to miscellaneous exhibits. Taking our estimate from the table that was filled with three collections in the class for fifty plants, it may be inferred that about 900 Auriculas were staged and 150 Polyanthuses.

It is not easy to fix a day to suit growers situated both in the cold north and sunny south. Had the day been a week earlier Mr. Ben Simonite could not have competed, and had it been a week later Mr. Douglas's best flowers would have been over. These facts afford the best evidence that the date of the Show was fortunate, because fair to all.

As yet the number of exhibitors of Auriculas increases slowly. Last year the prizetakers were Messrs. Horner, Douglas, Turner, Simonite, Cooper, Margetts, and Jones—seven; this year they were Messrs. Horner, Douglas, Turner, Barlow, Simonite, Dean, Llewelyn, and Margetts—eight. Mr. Curtis also exhibited this year. It is interesting to observe that the relative positions of the chief exhibitors are nearly the same this year as last. The champion, the Rev. F. D. Horner, remains far ahead of all rivals. He won, if we are right in our enumeration, twenty-five prizes last year, and the same number last Thursday. It is singular also that Mr. Douglas secured exactly the same number of prizes at both the Shows—fourteen. Mr. Turner had twelve prizes last year and ten this, Mr. Simonite four last year and five this. A new exhibitor at the Palace, Mr. Barlow, won an excellent position by securing seven prizes, and Mr. Llewelyn, also a new exhibitor, won four. Mr. Margetts had one prize last year and two this, and Mr. Dean had this year two prizes awarded. Mr. Jones, who was a prizewinner last year, did not compete this year, and the late lamented Mr. Cooper of Timperley secured three prizes in 1877. The Auriculas were in the aggregate finer—i.e., larger, this year than last, but not more refined: that applies to the edged flowers. The selfs were not so good as last year, but the Alpines were better. There was a great advance in both numbers and quality in laced Polyanthuses, yet there is plenty of room for still further advancement.

The Judges—the Rev. F. Tymons, Clogran, Drumcondra; S. M. Tandy, Esq., Clorinda Park, Kingstown, Co. Dublin; and Messrs. T. Moore, T. Baines, and A. Parsons, awarded the prizes as follows.

In Class A, twelve dissimilar varieties, the Rev. F. D. Horner, Kirkby Malzeard, Ripon, was in the premier place; Mr. Douglas, gardener to the President of the Society, F. Whitbourn, Esq., Loxford Hall, Ilford, second; Mr. B. Simonite, Rough Bank, Sheffield, third; and Mr. Charles Turner, Slough, fourth. Mr. Horner's collection comprised Walker's John Simonite, Lee's Col. Taylor, Booth's Freedom, Lancashire's Lancashire Hero, Traill's Prince of Greens, Simonite's Frank Simonite, Heap's Smiling Beauty, Campbell's Marquis of Lorne, Headly's George Lightbody, Smith's Ann Smith, Page's Champion, and Horner's Sapphire, a very fine purplish plum-coloured self. Mr. Douglas staged generally larger plants of Turner's Charles J. Perry, Col. Champneys, and Master Hole, Campbell's Admiral Napier, Kay's Alexander Meiklejohn, Beeston's Apollo, Hepworth's True Briton, Lightbody's Lord Clyde, Smiling Beauty, and George Lightbody, and a distinct and chaste silvery grey-edged seedling, which was certificated and afterwards named Silvia. Mr. Simonite's flowers, which were not quite fully expanded, were Reed's Ruby, Waterhouse's Conqueror of Europe, Campbell's Duke of Argyll, Sykes' Complete, Lancashire Hero, Traill's Beauty, Marquis of Lorne, Samuel Barlow, Frank Simonite; John Simonite, a fine seedling self with foliage as white as that of Centaurea candidissima, and rich velvety almost black flowers resembling Master Hole; and a seedling green-edged flower after the manner of Col. Taylor. Mr. Turner staged C. J. Perry, Robert Traill, Col. Champneys, Horsefield's Highland Queen, Sims' Eliza, Cunningham's John Waterston, Lancashire Hero, Turner's Sarah, Martin's Mrs. Sturrock, and Headly's Arabella.

In the class for six dissimilar varieties five collections were staged. The Rev. F. D. Horner headed the list with Prince of Greens, George Lightbody, Smiling Beauty, Booth's Freedom, and Lancashire Hero. Mr. Simonite was second with Frank Simonite, Talisman, Marquis of Lorne, Lovely Ann, and the two seedling selfs. Mr. Douglas third with Col. Champneys, Alexander Meiklejohn, Lord Clyde, Alderman Wisbey, Charles J. Perry, and True Briton. Mr. Turner was fourth with Omega (a new white-edged flower), Alderman C. E. Brown, Charles J. Perry, Col. Champneys, Mrs. Sturrock, and John Waterston. S. Barlow, Esq., Stakehill House, Chadderton, Manchester, was fifth with Litton's Imperator, Col. Taylor, Pizarro, Marquis of Lorne, Ne Plus Ultra and Mrs. Smith.

In the class for four varieties, dissimilar, six collections were staged. Mr. Horner was placed first with Pohlman's Ellen Lancaster, Smiling Beauty, Freedom, and Lancashire Hero; Mr. Douglas second with Campbell's Lord Palmerston, Charles J. Perry, Smiling Beauty, and Alexander Meiklejohn; Rev. B. H. Margetts, Liffington, Uppingham, third with Imperator, Alderman C. E. Brown, Summerscales' Catharina, and Mrs. Smith; Mr. Simonite fourth with Frank Simonite, Ann Smith, Samuel Barlow, and a seedling; Mr. Barlow was fifth with Traill's Beauty, Lovely Ann, Marie, and Marquis of Lorne; and Mr. Turner was sixth with C. J. Perry, Col. Champneys, True Briton, and Lee's Bright Venus.

The Rev. F. D. Horner was again in the foremost place in the class for two varieties with Lancashire Hero and George Lightbody. Mr. Barlow and Mr. B. Simonite were second and third respectively with the same varieties; Rev. B. H. Margetts fourth with Lovely Ann, very fine; and J. T. D. Llewelyn, Esq., was fifth with two seedlings, one a neat grey-edged flower, the other a bold flower with very dark body colour on a white paste.

Single Specimens.—*Green-edged.*—Fifteen plants were staged. Rev. F. D. Horner was first and sixth with Col. Taylor and seventh with Freedom, Mr. Simonite second with Hudson's Apollo, Mr. Douglas fifth with Beeston's Apollo and eighth with Lord Palmerston. *Grey-edged* (eighteen plants).—Rev. F. D. Horner was first with Alderman C. E. Brown and second and third with George Lightbody and Lancashire Hero respectively, Mr. Douglas was fourth with Alex. Meiklejohn, Mr. Horner fifth with Complete and sixth with George Lightbody, Mr. Turner was seventh and Mr. Horner eighth with the same fine variety. *White-edged* (twenty-five plants).—Rev. F. D. Horner was first with Summerscales' Catharina, second with John Simonite, third with Smiling Beauty, sixth with Ann Smith, and seventh with McDonald's Miss Arkley; Mr. Douglas was fourth and fifth with Catharina and eighth with Miss Arkley. *Selfs.*—Rev. F. D. Horner had the first three prizes with Pizarro, Meteor Flag, and Reed's Ruby, and the fifth and sixth prizes with Meteor Flag; Mr. Douglas was fourth with Sims' Eliza, and Mr. Barlow seventh with Meteor Flag. This was not a superior class.

The class for fifty plants in not less than twenty varieties was an imposing one. Alpines were included in this class, and five collections were staged. Mr. Douglas secured the first prize with splendid examples of culture—indeed, plants more vigorous have perhaps never been exhibited than these, but they were not so fresh as Mr. Turner's admirable second-prize collection. Mr. Douglas's plants consisted of Hudson's Apollo, very good; Lancashire Hero, Lancashire Hero, Sims' Vulcan, Chapman's Maria, Sykes' Complete, Smith's Lycurgus, Turner's Master Hole, Oliver's Lovely Ann, Spalding's Metropolitan, a grand truss; Headley's Alderman Wisbey, Traill's Beauty, very good; Kay's Topsy, Lady Sophia Dumaresque, Lightbody's Robert Traill, Campbell's Marquis of Lorne, Campbell's Admiral Napier, Lightbody's Lord Clyde, Turner's Colonel Champneys, Hepworth's True Briton, Traill's General Niel, Pohlman's Ellen Lancaster, Gain's Lady Richardson, Cunningham's John Waterston, Smith's Britannia, Perry's Charles Turner, Campbell's Confidence, Cunningham's Mrs. Campbell, and Lightbody's Meteor Flag. The more noticeable of Mr. Turner's varieties were Turner's Charles Perry, Turner's Minstrel, Finlayson's Sir R. Peel, Ives' Bishop of Lichfield, a fine dark self; Lightbody's Richard Headly, Turner's Clipper, Jeffrey's Sir H. Havelock, and Turner's Calypso, a good purple self—in fact self predominated in this collection. Fine as this collection undoubtedly was, the plants being remarkably clean and fresh both in foliage and flowers, it was overpowered by the extreme luxuriance of the Loxford plants. J. T. D. Llewelyn, Esq., Yniaygerwn, Neath, had the third prize with a very creditable collection. Mr. Dean, Ealing, and Mr. T. Curtis, Atherton Grange, Wimbeldon, also competed. The plants of the last-named exhibitor were border Alpines, some of the trusses being of great size.

ALPINES.—In the class for twelve plants four collections were staged. Mr. C. Turner secured first honours with King of the Belgians, a grand dark flower; Slough Rival, an equally fine light variety; Mrs. Thomson, a rich dark flower and splendid truss; Queen Victoria, a beautiful light-centred variety; Dolly Varden, Unique, Beatrice, very fine; Napoleon III., Mrs. Dodwell, John Bull, and Miss Froud—all, we believe, raised at Slough. Mr. Douglas was a good second with Turner's Bronze Queen, very fine; Prince, Florence, and Queen, raised at Loxford; Gorton's Diadem, Beatrice, Neatness, Miss Reid, Minnie, Selina, Spangle, and a seedling. Mr. Barlow was placed third and Mr. Llewelyn fourth in this class with good collections.

In the class for six plants the prizes were awarded to Messrs. Turner, Douglas, Barlow, Dean, and Llewelyn in the order of their names. Troubadour in Mr. Turner's collection was remarkably fine, as also was Sensation, while Silvia attracted notice in Mr. Douglas's collection. The remaining varieties were the same as those mentioned in the preceding class.

Twenty-eight plants were staged in the class for a single specimen Alpine. Mr. Turner secured the first prize with Miss Taplin, a large smooth flower with a creamy centre; the petals are maroon slightly shaded with violet. The same exhibitor was second with

Mariner, a striking maroon slightly shaded flower with pale yellow centre. Mr. Dean was third with Captivation, a truly captivating laced flower that was certificated last year. Mr. Douglas was fourth with Meiklejohn's Mrs. Meiklejohn, a richly shaded flower of great merit; and Mr. Turner was fifth and sixth with King of the Belgians and Unique.

Premier Auricula. The flower selected from the entire Exhibition which won this great honour was George Lightbody, exhibited by Rev. F. D. Horner. Although the truss was symmetrical and composed of nine pipes it was not quite equal to the premier flower of last year.

In the Polyanthus classes Mr. R. Dean, Ealing, was first for six gold-laced varieties with Exile, Lancer, Formosa, George IV., Earl of Lincoln, and President; S. Barlow, Esq., was second with Cheshire Favourite, Exile, George IV., President, Lancer, and a seedling; Mr. John Beswick, Middleton, third; and Mr. James Douglas fourth, in whose collection the same varieties were represented. For two dissimilar varieties Mr. J. Beswick was first with Cheshire Favourite and Exile; Mr. S. Barlow second with Cheshire Favourite and President; Mr. W. Brownhill, Sale, third with Cheshire Favourite and Exile; and Mr. R. Dean fourth with Cheshire Favourite and Cox's Regent. In the class for a single specimen Mr. Brownhill was first, second, and fifth; Mr. S. Barlow third and fourth; Mr. Beswick sixth; all showing Cheshire Favourite.

CERTIFICATES.—These were awarded to

Silvia (Douglas).—A silvery grey-edged flower, the result of a cross between George Lightbody and Robert Traill. Paste very pure and circular; body colour faint; segments rather pointed. A distinct and attractive variety.

Omega (Turner).—White edge. Pure white circular paste; body colour black, good eye; edge a little irregular or crimped. A striking, but as exhibited not a refined flower.

Annie (Barlow).—Self. Purple maroon, shaded pale purple, small round creamy centre; petals stout, and flower well formed. Excellent.

Queen (Turner).—Alpine. Colour maroon, slightly shaded violet, centre pale yellow; fine truss. A smooth and striking flower.

Mariner (Turner).—Alpine. A fine flower previously described.

Mrs. Meiklejohn (Meiklejohn).—Alpine. Exhibited by Mr. Douglas and alluded to above. The best new dark-shaded variety exhibited.

National (Turner).—Alpine. Bold, clear, creamy centre; petals broad and well formed; colour maroon, faintly shaded with purple. Smooth and fine.

Certificates were also awarded to Mr. Dean for Polyanthuses Royal Sovereign and Lustrous, the former a yellow self with round flowers and fine truss, and the latter a glowing crimson flower with golden centre and fine Auricula-like truss; very fine. A certificate was also awarded to Mr. Ware for Golden Eagle, which closely resembles Royal Sovereign, and a similar award was granted to Mr. Hooper, Bath, for fancy Pansy F. Perkins, a large striking flower; colour velvety purple maroon shaded with pale purple.

Amongst the miscellaneous exhibits we noticed a trio of Alpine Primula Auriculas exhibited by Mr. Llewelyn—namely, P. A. Marginata, brought by L. L. Dillwyn, Esq., M.P., from the Gemmi Pass, Switzerland; it had mealy foliage, bright yellow medium-sized flowers, and good truss; very pretty. Another plant from Grindenvold, Switzerland, had long narrow foliage and a tall truss of Cowslip-like flowers; the remaining plant being very similar to it. Mr. Hooper, Bath, contributed a brilliant display of Pansies; Mr. Ware a collection of herbaceous and Alpine plants; and Mr. Dean an attractive group of Primula amœna vars. Mr. Turner, Slough, arranged an extensive and beautiful assortment of Azaleas, Roses, Pelargoniums, and Auriculas. These plants, interspersed with Palms and fine-foliaged plants excellently grown by Mr. Thomson at the Crystal Palace, formed a valuable adjunct to a beautiful Show.

MANCHESTER (NORTHERN SHOW), APRIL 30TH.

I HAVE just had the pleasure of seeing a very beautiful display of Auriculas at the Manchester Town Hall, and, reserving my observations thereon until next week, merely append the list of prizes. It will be noticed that Mr. Horner's name does not appear, he not having exhibited, the ordeal his plants went through in their southern visit having been enough for them.

Class A, six Auriculas.—1, Mr. B. Simonite; 2, Mr. H. Wilson, Halifax; 3, Miss Stewart, York; 4, Mr. E. Pohlman, Halifax; 5, Mr. C. Roysds.

Class B, four Auriculas.—1, Mr. Simonite; 2, Mr. H. Wilson; 3, Mr. Woodhead; 4, Mr. C. Roysds.

Class C, two Auriculas.—1, Mr. R. Gorton; 2, Miss Stewart; 3, Mr. B. Simonite; 4, Mr. T. Mellor.

Class D.—Premier, 1, 3, 4, and 8, Mr. Wilson; 2, Mr. W. Taylor; 5 and 6, Mr. Simonite; 7, Mr. Roysds.

Class E, single grey edge.—Premier and second, Mr. Woodhead; 1, 3, and 7, Mr. Booth; 4, Mr. Taylor; 5, Mr. Wilson; 6 and 8, Mr. Simonite.

Class F, single white edge.—Premier, Mr. Taylor (Smiling Beauty); 1, Mr. Wilson; 2, Mr. Partington; 3 and 4, Mr. Simonite; 5, Mr. Booth; 6 and 8, Miss Stewart; 7, Mr. Mellor.
 Class G, self.—Premier, 1, and 6, Mr. Roys; 2, Mr. Bateman; 3, 4, 5, and 8, Mr. Wilson; 7, Mr. Pohlman.
 Best green edge in the Exhibition.—Mr. H. Wilson.
 Best grey edge in the Exhibition.—Mr. Woodhead.
 Best Lancashire Hero.—Miss Stewart.
 Best four Alpines.—1, Mr. Booth; 2, Miss Stewart; 3, Mr. Gorton; 4, Mr. Barlow.
 Best yellow ground.—1, 2, 3, and 4, Mr. Booth; 5, Mr. Bateman.
 Best white ground.—1, 3, and 5, Mr. Booth; 2 and 4, Miss Stewart.
 —D., Deal.

THE PRESTON SHOW OF THE ROYAL HORTICULTURAL SOCIETY.

It was with unfeigned gratification that I heard of the intention of the Council of the Royal Horticultural Society to resume their provincial shows, which in former years were productive of so much benefit both to the Society itself and to horticulture, by the organisation of such a show at Preston for next July. Such manifest signs of vigour and true horticultural interest encourage us to look for great things in the future from the Society. But I cannot keep silence when I read the anonymous communications which appear in the columns of your contemporaries, written by correspondents who evidently know nothing whatever of the arrangements made, and of the spirit which pervades both the Council of the Society and the Local Committee at Preston, from the Mayor of the town, who is Chairman, through every member of the Committee. I happen to be acquainted with some of the members of the Council, who are quite in earnest, I can assure you, in spite of the assertions of the anonymous writers to whom I allude; and from the reports of friends at Preston I feel equally certain that the energetic Local Secretary, Mr. Shuttleworth, has all the ability as well as all the determination to ensure a grand success in spite of what is being said to the contrary. Such statements must come from people who want to see a failure, and as an ardent horticulturist I hope you will be able to put such information from time to time before your readers as will supply the true facts of the case.—FAIR PLAY.

OUR BORDER FLOWERS—GRASS OF PARNASSUS.

It may appear at first sight somewhat out of place to say that such moisture-loving plants as Parnassias should be placed among border flowers. Whatever may be said of the origin of these plants, there need be no hesitation in saying that they are among the choicest of our border flowers. They are said to have had their origin on Mount Parnassus, a famous mountain of Greece, hence the name Grass of Parnassus, but have no resemblance to any Grass that I am acquainted with. Why it is called Grass at all I am unable to say. In the autumn many places of our country, especially marshy districts and Alpine regions, wet hills and moist moors, are covered with this beautiful plant with its charming white flowers. When seen in quantities in its native home it leaves an impression that is not easily effaced from the mind of the beholder. The plants are seldom met with in cultivation, but they can with care be turned to good account. They are very effective on moist shady rockeries, yet they will bear full exposure to the sun when supplied with water. They are charming plants for margins of ornamental waters, and they will well repay any amount of labour bestowed upon them in cultivation. They are not particular as to soil; moisture is their chief element. They are increased by seed sown as soon as ripe in any place where the plants can have light and moisture, and by division in the spring. Four or five species are enumerated which reach us from the North American Continent, but our own *Parnassia palustris* is the choicest of them all, and ought to be taken in hand by all cultivators of our border flowers.—VERITAS.

NOTES AND GLEANINGS.

WE are glad to know that a movement which promises to be very successful is in progress for holding a PEOPLE'S FLOWER SHOW at South Kensington on Whit-Monday, June 10th. Already several handsome subscriptions have been received towards the expenses, and some of the leading exhibitors—among whom are Messrs. Veitch, Williams, Osborne, Wills, and others—have undertaken to contribute of their floral wealth towards the display, which is expected to be an imposing one.

The Lord Mayor has very kindly promised to countenance this endeavour of the Society to add to the enjoyments of the great masses of the working population of the metropolis, and we believe that some of the City companies will also identify themselves with the movement.

THE ROYAL NATIONAL TULIP SOCIETY'S SHOW is announced to be held at the Manchester Botanical Gardens on June 1st. The Society, which is under the patronage of the Queen, has for its President and Hon. Secretary an ardent florist, Samuel Barlow, Esq., Stakehill House, Chadderton, near Manchester. Prizes to the amount of £60 are provided, and energetic efforts are being made to render the Show a success and to strengthen the Society, which is established for promoting the cultivation of the Tulip. The schedule is composed of thirteen classes—nine for rectified Tulips and four for breeders. Seventy prizes are offered, commencing with £5 or a cup for five stands of twelve dissimilar Tulips, with proportionately smaller amounts in the smaller classes.

AT the Show in connection with the MAIDSTONE ROSE CLUB to be held on July 3rd, a silver challenge cup value £12 is provided for the best box of eighteen blooms. The cup is to be retained by the winner for the year, and will become the property of the member who shall win it at three exhibitions, not necessarily consecutively. A challenge cup of the value of £8 is also provided for a device consisting of Roses combined with Ferns or other foliage. Only members of the Club can compete at the Show. Rev. Alan Cheales provides prizes for the best Hybrid Perpetual and the best Tea and Noisette Rose in the Exhibition. We are glad to observe from the cash account of 1877 that the income of the year exceeded the expenditure by £2 13s. 4d. Mr. Hubert Bensted is the Secretary.

ROYAL HORTICULTURAL SOCIETY OF IRELAND'S FIRST SPRING SHOW for the present year, held at the Exhibition Palace, Dublin, was, says the *Irish Farmers' Gazette*, of a high order of merit in every department, and in several classes was very much above the average. The cups for exotic plants and Azaleas were won by Mr. Westby. Mr. Boyle, Mr. George Orr Wilson, Mr. Bracken, Mrs. Mander, and Miss Power also exhibited well in the plant classes. In the florists' section there was a capital show. The Lord-Lieutenant's cup for eighteen Hyacinths was won by the Solicitor-General with a first-class collection. There was a large display of Auriculas, the principal exhibitors being Mr. Leland, Mr. Chaloner, and Rev. Frederick Tymons. Roses were largely shown, the first prize being awarded to Mr. Riall for a splendid box of *Maréchal Niel*. Excellent stands of Pansies were exhibited by Mr. Leland, Mr. Comyns, and Mr. Riall, and two capital stands were exhibited, not for competition, by Mr. W. Paul, nurseryman, Paisley. Some good dishes of dessert Pears were shown by Mr. T. P. Hogg and Capt. Isacke, a good dish of dessert Apples by Mr. Millner, and well-kept baking Apples by the last-named exhibitor and Mr. Hogg. Vegetables were first-rate, especially those exhibited by Mrs. Manders, Mr. Wilson, Mr. Comyns, and Mr. Reid.

AT Fern Lodge, Ascot, Mr. Southard's charming suburban residence, a visitor informs us the POLYANTHUSES are magnificent. Armfuls of flowers, he says, are produced by some of the roots, and the rich effect produced by the glowing masses of these hardy spring flowers is splendid. The soil is sandy loam. Conifers are also in remarkable vigour. The gardens and other adjuncts of the residence, such as poultry conveniences and the miniature home farm, are all in that high state of keeping which renders a visit to them peculiarly enjoyable.

MESSRS. ALEXANDER SHANKS & SON, of Dens Iron-works, Arbroath, have designed and constructed a TROPICAL GARDEN which is shortly to be erected at Gothenburg. The garden will consist of five houses substantially built of iron and glass, each one heated to the temperature of the countries from which its exotic occupants have been drawn. The structure, which weighs nearly 200 tons, will be roofed with nearly 40,000 feet of glass.

THE extent of ground devoted to the cultivation of SEAKALE in the London market gardens indicates how great is the demand for crowns for forcing purposes. Not only are scores of acres especially prepared and planted for producing crowns of the first quality, but during the past spring gangs of men and women have been engaged in planting "sets" of Kale between the rows of Cabbages. The Cabbages are cut early, and the Seakale then covers the ground and forms

moderate-sized crowns by the autumn. The sets are planted in drills with dibbers. Three or four men draw the drills, two or three women lay out the sets, and a gang of twenty men follow and insert them, the "ganger" walking backwards and forwards before the plants to see that the work is done properly. This close supervision is the more necessary since nearly all work in the market grounds is done by the "piece." This plan of growing Seakale and forcing the crowns in batches is much cleaner and more economical than the old mode of having the stools 3 feet apart and covering them with piles of manure.

— A CORRESPONDENT writes:—"Visitors to HAMPTON COURT GARDENS will bear with extreme regret and indignation that during the winter those fine and ancient avenues of Limes have been for all time completely disfigured and their beauty destroyed. The lower branches, which so gracefully swept the turf, being the admiration of all and adding so much to the beauty and enjoyment of these unique grounds, have been cut away. The trees now are primed some 12 feet high, destroying the shade and seclusion, and opening out an almost uninterrupted view of the grounds, exposing only bare trunks—in fact, destroying the picturesqueness and grace both of the trees and the gardens. It seems a pity that such vandalism should be permitted, and that the beauty and charm of these ancient and time-honoured monarchs of the forest should be despoiled."

— THE GENIAL WEATHER that has lately prevailed has caused the foliage of deciduous trees to unfold with great rapidity. Many Chestnut trees in the vicinity of London have nearly completed their season's growth and the flowers are just expanding. It is noteworthy that the Horse Chestnut makes all its growth in less than a month, and this year that growth has been hitherto unchecked. Last year the frosts of spring despoiled the Chestnut trees of their beauty, and they had a rusted appearance throughout the season. Lilacs, early Thorns, and Laburnums are just showing the colours of their flowers, and *Wistaria sinensis* is flowering freely on south walls in the neighbourhood of the metropolis. We never saw the foliage of hardy trees expand more freely and appear more healthy than at the present time.

— ALTHOUGH AURICULAS are hardy plants and usually expand freely in cold frames in the southern counties, yet the plants will not only endure artificial heat, but in the case of flowers grown in the north such assistance is imperative to have the plants "in" for the southern shews. Mr. B. Simonite informed us at the Crystal Palace that every flower he had there had expanded during the week previous to the Show in a temperature of 60° to 70° solely by fire heat. Not only had there been no sun at Sheffield, but a dense chilly fog had prevailed, and the atmosphere was as thick and murky as it usually is in November. In order to keep the flowers clean tiffany is fixed across the ventilators to filter the soot-laden air. Such are the obstacles the stern cutler florist has to contend with; he surmounts them, and emphatically deserves the honours he wins.

— IN "Familiar Wild Flowers" there are the following notes on the GLASTONBURY THORN. "Near Glastonbury Abbey stands an old Hawthorn that has been the subject of many legends, the current belief, however, being that it sprang from the staff of Joseph of Arimathea, who, it is asserted, was the first preacher of Christianity to Britain, and who, to convince the benighted islanders of his mission, thrust his staff into the ground, where it at once budded and blossomed. The tree has ever since flowered, not only at its proper season, but also at each Christmas, the anniversary of its miraculous origin. A piece that came under our notice on December 16th had eight bunches or corymbs of flowers on it. Each of these was composed of from twenty to thirty blossoms and buds, about a dozen of the flowers in each corymb being fully expanded. The blossoms were a little smaller than would ordinarily be looked for, but had all the beauty and regularity of form and the characteristic Hawthorn scent of the normal plant. The only thing abnormal in the appearance of the spray was the absence of the foliage. The Glastonbury Thorn is not absolutely unique; some few others, as at Romney and near Nantwich, possess the same peculiarity of flowering twice, first in May and again about the end of the year."

— We learn that Mr. BATTERS, who has for upwards of nine years been gardener at Chilworth Manor, Romsey, is about to resign his charge there. Mr. Batters is known as a

successful gardener, and has often exhibited excellent vegetables grown in pots at the meetings of the Royal Horticultural Society.

— AT the Great International Exhibition held at Philadelphia in 1876, there were exhibited some extraordinarily large sections of various species of trees from California and Oregon, amongst which, besides the *SEQUOIA GIGANTEA*, or *WELLINGTONIA*, with the dimensions of which we are already familiar, there were several notable examples of gigantic growth. Two sections of the Oregon Yellow Pine (*Abies grandis*) were exhibited, which were cut from a tree 321 feet in height, and 15 feet 9 inches in diameter at the butt. The first section was taken at the height of 130 feet from the ground, and measured 6 feet 10½ inches in diameter, exclusive of the bark. The second section, taken at 200 feet up, measured 5 feet 10 inches in diameter of solid timber. A fine section from the same State of *Abies Menziesii*, taken at the height of 98 feet from the ground, was 6 feet 10 inches in diameter, and the tree from which it had been cut was stated to have been 318 feet in height, and 16 feet in diameter at the butt. A magnificent section was also exhibited of the Oregon Red Cedar (*Thuja gigantea*), which measured 22 feet in diameter, and was taken from the base of a tree said to have reached the gigantic height of 325 feet.

HINTS ON LANDSCAPE GARDENING.—No. 4.

VILLA GARDENS.

ON page 245 it was stated that there are large Elms in the garden at The Firs, Lee. These are the English variety, *Ulmus campestris*; and it was by no means intended to imply that this Elm should be planted in other small gardens, for notwithstanding the rapidity of its growth, its gigantic proportions and stately appearance when full grown, and the long period of its existence in favourable sheltered positions, the wood is so brittle that in exposed situations there is much risk of damage from high winds. Many a noble tree have I seen wrecked by storms—limb after limb broken off, till it became such an unsightly spectacle that it had to be cut down.

Trees deciduous and evergreen, ornamental and durable, are, however, plentiful enough. Which shall we choose? Here are a few taken from a regular host of well-trying favourites, and first of all comes *Robinia Pseud-Acacia*, Cobbett's much-praised Locust Tree, attaining a height of about 40 feet, worthy of a prominent position for its elegant foliage and pretty white flowers; and the Rose *Acacia*, *Robinia hispida*, of about half the height of the *Pseud-Acacia*, with charming racemes of pink flowers. The Tulip Tree of more lofty growth is equally ornamental in its way, and may well be termed a large handsome-flowering tree, suitable either for mixed groups or for isolated specimens. It is a tree much affected by soil and situation. In sheltered positions and deep rich loam I have more than once met with it 80 feet high, but it will more frequently be found not to exceed half that height; yet though dwarfed by exposure and poverty of soil it is always handsome in growth, foliage, and flower. The Horse Chestnut, though much more common than the Tulip Tree, is equally beautiful. It answers well in most soils, but is worthy of the best soil we can give it, for nothing can be finer than its masses of handsome foliage, and the beauty of its bold spikes of white pink-blotched blossom is too well known and admitted to need one word of praise from me. This tree gains much in effect when associated with the common white-stemmed Birch—the one so massive and stately, the other so graceful and sprightly. By all means plant the Birch; always ornamental. It increases in beauty with age, and has peculiar charms at different periods of the year. In spring the fresh lively greenery of its opening buds is singularly pleasing; in summer the long pendent growths yield to the breeze, swaying to and fro in wild yet graceful disorder; and in autumn and winter not only do the white stems and red branches impart brightness and tone to their surroundings, but the branches—when the spray is laden with thousands of little globules of water, as is always the case on dull foggy days—afford us one of the most beautiful sights in Nature. Another tree which tells well near the Horse Chestnut is the Fern-leaved Beech, *Fagus asplenifolia*, of somewhat slender growth, and well clothed with handsome foliage.

I have already called attention to the value of the Snowy Mespilus for small gardens, and must not omit the stately *Ailantus glandulosa*, a somewhat dwarf tree, growing about

20 feet high, but which its fine foliage renders wonderfully effective. Then, too, there is our old favourite Judas Tree, of about the same height, with a somewhat spreading top, heart-shaped foliage, and flowers of a purplish hue; the red Maple (*Acer rubrum*), the dark purple Maple (*Acer polymorphum atropurpureum*), both said to attain a maximum height of 20 feet, but I have seen *rubrum* nearly 30 feet. *Pavia rubicunda*—better known, perhaps, as the scarlet-flowered Horse Chestnut

—makes a pretty dwarf tree of about 10 feet; and I must not omit the Mountain Ash (*Pyrus Aucuparia*), with its sweet-scented flowers and bright red berries. It answers very well in a poor thin soil, and is said to grow 40 feet high in a rich soil. The finest I have seen would not exceed 30 feet, and I should be glad to know where finer specimens are to be seen. The Stag's-horn Sumach (*Rhus typhina*) and the Guelder Rose (*Viburnum Opulus*) are both worthy of a place, as are many

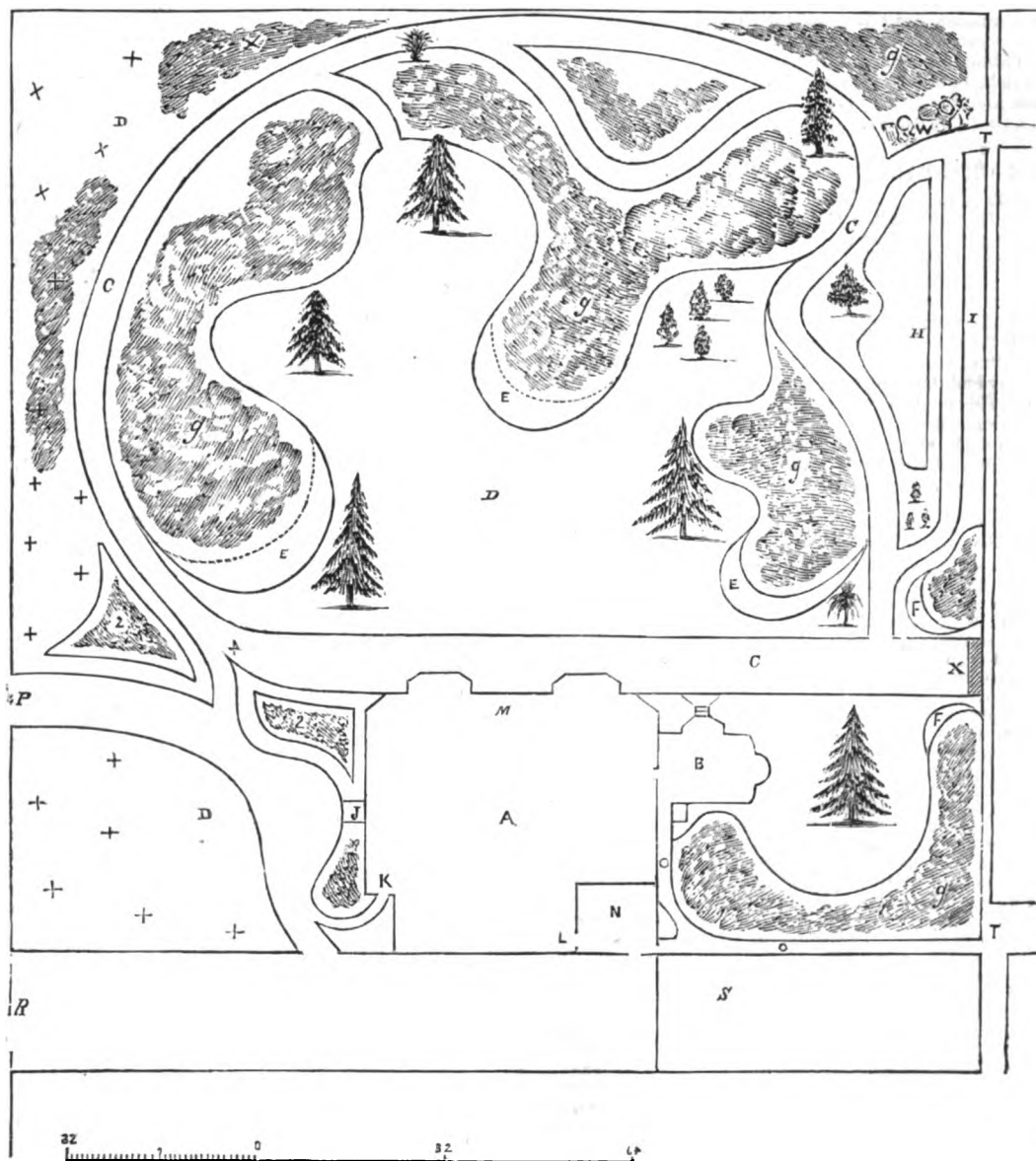


Fig. 50.—DESIGN FOR A VILLA GARDEN.

- A. House
- B. Conservatory
- C. Paths
- D. Grass lawns
- E. Flower beds
- F. Beds of sweet-scented flowers

- G. Shrubs
- H. Roses
- I. Border for perennial flowers
- J. Front door
- K. Side door
- L. Back door

- M. Garden door
- N. Kitchen yard
- O. Path from kitchen garden to conservatory and kitchen
- P. Front gate and carriage road
- R. Back gate

- S. Stable yard
- T. Entrance to kitchen garden
- W. Rocks for alpine
- X. Seat at end of terrace
- The marks x x x indicate position of large trees.

more which I must not enumerate, and yet the Lime must be included, for it is, perhaps, the most useful of all, forming a thick, dense, yet spreading growth, making a capital screen when in leaf, and when in flower most delicious with sweet perfume.

Leaving evergreen trees and shrubs for my next communication, attention must now be given to the arrangements in the design for a villa garden (fig. 50). It is drawn to a scale of 32 feet to an inch. The villa and pleasure grounds would there-

fore require a space measuring 166 feet by 160, and the design might very easily be adapted to a garden of double the size, an enlargement of the area to be dealt with of course affording facilities for the introduction of other features. The broad walk in front of the house may be raised if the house stands upon a higher level than the lawn, in which case a flight of steps opposite the centre of the house should lead down to the lawn. Circular beds might be introduced for the Roses, but

the single large bed (H) would be better for the Roses, in affording more space for the roots and greater facility in the application of manure. The specimen trees upon the central lawn need not necessarily be Conifers, but very large trees in the centre of so small a garden are objectionable. The shrubs in the beds (Q Q) may be continued to the points (I I) if it is desirable to shut-in the front lawn from the carriage drive; the wall by the perennial border (I) to be turned to account for Tea Roses or other climbers. If space could not be afforded for the pyramidal fruit trees as shown in the kitchen garden, espaliers, or rather trees trained in the improved French method termed *Palmette Verriers*, could be used instead.

The kitchen garden is suggested to be formed at the right of the plan, and to which walks (T T), are represented as leading.
—EDWARD LUCKHURST.

THE CRYSTAL PALACE AURICULA SHOW.

To what is to be attributed the very bad arrangement of the Auricula Show at the Crystal Palace? The good nature of the Secretary, the dilatoriness of exhibitors, or the remissness of the Crystal Palace authorities? Wondering at seeing a crowd of people surrounding the flowers while the prize labels were not added, and inquiring what it meant, I was told that the judges were not admitted until an hour and a half after the time specified, that subscribers and their friends were admitted while the judging was going on, and that long before they had finished the public in general were obliged to be let in. This ought not to be. The judging of florists' flowers requires great quiet and no disturbance from outsiders. Rules should be made and be adhered to, or competent judges will refuse to act. I write this as a well-wisher and not in any spirit of opposition.—VISITOR.

NOTES ON VILLA AND SUBURBAN GARDENING.

THE present is a very busy time for all persons connected with a garden. Gardens that a fortnight since were both neat and clean have now become overrun with weeds unless the hoe and spade have been in constant use; and the grass plots that were short and neat have grown quite long, and must have immediate attention to maintain them in good order throughout the season. Under glass the same rapid movement has occurred. Vines are growing apace, and bedding and other plants that a short time since had plenty of space are now become crowded, and will consequently, unless removed, soon become drawn and weakly. It is surprising what an impetus a few days of brilliant sunshine, when accompanied with genial showers, give to vegetation at this period of the year.

Vines.—In houses where little or no artificial heat can be given the Vines have now started well into growth, and must have timely attention if a good crop of ripe Grapes is wished for. The young shoots must be tied down to the wires which are run across the house to support them. The strongest shoots on each spur should be retained and the smaller growths be rubbed off. As the shoot increases in length it is brought down gently to the position it is to retain. This work requires much care to prevent the shoot from snapping off. It should be remembered that by the breaking-off of a young shoot at this season the loss of a bunch of Grapes may be a small evil in comparison with denuding the Vine of a permanent spur where one is required for producing fruit in future years. Secure the shoots, therefore, to the wires with care and judgment. A few shoots may be brought to their positions at once, but others require the exercise of much patience, and must be brought down an inch at a time over several consecutive days. Many Vines are permanently injured by the young shoots being roughly handled, and by being secured to the wires in a hurried manner. Pinch off all bunches of fruit except one on each lateral, and stop each shoot two leaves beyond the bunch. In the course of a short time laterals will grow from these young shoots, which must be further stopped at the first leaf or joint. Syringe daily until the Vines are in bloom, which can easily be detected by the perfume they emit. Vines in full bloom are very sweet, the perfume resembling that given off by *Mignonette*. If the structure in which the Grapes are growing can by any means be artificially heated apply heat by night while the Vines are in bloom; it will facilitate the process of setting as well as lengthening the bunches. In all cases damp the floors and stages, and close the house early to conserve the solar heat. Grapes that are already set should have the berries thinned with a pair of Grape scissors, removing the smaller berries and thinning sufficiently for those left to swell and grow to a large size.

Bedding plants continue to place out of doors under mats, or temporary protection to harden-off. This will allow of more space within for the more tender plants to advance in size. Increase *Fuchsias* by cuttings if required, and pot off those already struck. Shift into larger pots any that have become

root-bound and which are wanted to attain specimen size, using light friable soil. Give plenty of moisture at the root and overhead, and maintain a close, shaded, and humid atmosphere, and the plants will grow very rapidly. Stop the shoots by taking out the points up to within eight weeks of the time the specimens are wanted to bloom; they will then flower very regularly, and when fully out their drooping graceful flowers render the plants very valuable for decorative purposes.

Herbaceous *Calceolarias* in their blooming pots are becoming root-bound, and should be assisted with liquid manure while throwing up their trusses of flowers. Whenever green fly appears fumigate the plants with tobacco paper before the fly cripples the blooms.

Chrysanthemums must not be allowed to stand about in small pots until their roots have become matted together, but should be shifted into larger pots as the plants require. Place small sticks to the shoots, and place the plants on a bed of coal ashes to prevent worms from entering the pots. We strongly recommend early-struck, and by this time well-established plants, both for growing into specimens or for producing blooms of high quality. Stop the shoots of plants that are intended to grow bushy, but for large flowers we let the majority of our plants grow naturally. Plants of medium height can be had by merely stopping once and only allowing two, or at the very most three, breaks to grow up. We have found plants so treated produce blooms very little inferior to plants not stopped, and amateurs with limited glass houses have not as much difficulty in housing such plants in the autumn as when the plants are left to grow without being stopped. Do not by any means allow them to suffer by want of water, or the bottom foliage will turn yellow and subsequently fall off. Slow steady growth and well-matured wood produce the largest and best flowers.

Auriculas are just now in their full beauty, and are verily amateurs' flowers. Converts to this old-fashioned but popular florist flower would do well to pay a visit to a good collection, note the freest-growing and showiest varieties, and order a collection accordingly, or, failing this, make a selection of varieties from those named both in last and this week's Journal.

Many shrubs in the borders of our pleasure grounds are now in full bloom, particularly the double-flowering Cherry, *Berberis Darwini*, various *Rhododendrons*, the double-flowering Gorse (its golden-covered heads are now most gorgeous), *Pyrus japonica*, and *Mahonia aquifolia*, while the flower beds are bright and gay with *Myosotis*, Wallflowers, *Polyanthus*, Pansies of various shades, more especially the blue and yellow selfs, and double Daisies. These, if kept free from weeds, will for the next few weeks greatly enhance the beauty of the grounds. Insert cuttings or slips of double Wallflowers under handglasses; those taken off with a slight heel of old wood strike best. Sow seed at once of the single variety, and subsequently transplant the seedlings for next spring's supply.

Asparagus will now soon be plentiful. Cut the heads level with the soil; by doing so you avoid injury to advancing growths which are yet under the soil. Keep the beds clear of weeds. Stir the ground around Cauliflowers, and give liquid manure twice a week to the plants. Run the hoe through advancing crops of Onions, Parsnips, and Strawberries, and myriads of seedling weeds will be destroyed, and the crops will be otherwise benefited. Draw soil to and stake Peas before they fall over and require propping up. Early Potatoes are coming fast through the ground; draw as much soil as possible around them to prevent injury from further late frosts. Jerusalem Artichokes may yet be planted if not already done, planting the sets fully 2 feet apart every way. For growing in odd corners or blocking-out unsightly objects we know of nothing to equal the Jerusalem Artichoke; it is also a profitable and palatable vegetable.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Sow at once the main crop of Dwarf Kidney Beans in rows 2 feet 6 inches apart, and place the Beans about 4 inches distance in the rows to allow for casualties, afterwards thinning the plants to a foot distance apart. Canadian Wonder and Negro Long-podded are the best; Ducrot is a recent introduction of great merit. Scarlet Runners should be sown at once; the drills, if the Beans are to have stakes placed to them, 6 feet apart, placing the seeds 6 inches apart. Some dispense with stakes, stopping the plants instead, in which way they produce well. The rows for this mode of culture must not be less than 3 feet apart. We prefer staking, having at our command larch stakes of about 8 feet in length. We grow a row of Dwarf Beans between the rows of Runners, the rows being north and south. Trenched well-manured ground is essential, with plenty of moisture after the plants come into flower, along with mulchings of short manure. Champion (Carters') is very superior to the old Scarlet Runner, and Suttons' New Giant is an excellent and very prolific variety with long pods. Mont d'Or Butter Beans should be sown now in rows 6 to 6 feet apart. They require stakes 6 feet in height, or may be grown the same as Scarlet Runners. In cold localities they require a warm

situation. The pods are cooked whole and are very delicious. Premier Runners are very prolific. They require stakes of 4 to 5 feet. All the small-seeded Beans should be covered with soil 2 inches deep, Scarlet Runners rather more, the seed requiring to be covered rather deeper in light soil than in heavy.

Broccoli should now be sown for the main late crop, also Savoy, particularly the dwarf varieties, which come in early in autumn and take up little room. They afford nice heads if the plants are grown 1 foot apart; the varieties Tom Thumb, Early Vienna, King Koffee, and Early Elm being improvements in quality upon the larger varieties. Make good the plantations of Cauliflowers; any that are "blind" or have buttoned pull up and replace by plants from the early spring sowings in heat. Plants will now be ready from the earliest sowings to plant out, and to maintain a supply of close heads plant out a sufficiency for the demand every fortnight or three weeks. Coarse heads are a result of distant plantings. We plant in rows 2 feet apart and 18 inches asunder; greater distance is no advantage, the heads having to be cut whilst small, so with more space great waste would be incurred. If large heads are wanted the distance may be 8 feet every way.

The thinning of spring-sown crops of roots will soon require attention, an operation often too long delayed, whereas they should be thinned when the plants can well be handled. We thin in the first instance to about half the distance it is ultimately intended the plants should be from each other. Carrots are thinned to 8 inches distance for the Horn kinds, 4½ to 6 inches for the long varieties, which admits of every other plant being drawn in a young state without any detriment to the main crop, the second thinning being very serviceable. Parsnips are thinned the same distance as the long varieties of Carrots, as we have a demand for the roots in a small state, but where there is no demand for them thin-out the full distance—viz., 9 to 12 inches. Salsify and Scorzonera are thinned to from 6 to 9 inches asunder, Chicory the same, Beet being left 9 to 12 inches. Onions are taken in hand so soon as they can be handled, partly for saladings, but we thin them to 2 inches early, which leaves plenty for spring Onions, finally thinning them to 6 inches. If the thinnings are planted-out closely they will form small bulbs for pickling. Seed of Silver-skinned or Two-bladed Onion sow now thickly in beds of poor soil for producing small Onions for pickling purposes. The autumn-sown Onions are now growing rapidly; they will have been thinned and probably stand about 8 inches apart. Water them if necessary between the rows, and as they form bulbs every other plant may be drawn for use, they being very serviceable at this time when the old Onions are becoming soft. No Onions seem to find greater favour with cooks than the white—Neapolitan Marzago, White Tripoli, White Lisbon, and especially the Queen. If large specimens are wanted the most promising plants must have every opportunity of acquiring full development, allowing 9 to 12 inches distance from plant to plant. Fly the hoe frequently between the rows of growing crops, which is promotive of growth as well as destructive of weeds.

HARDY FRUIT GARDEN.

Notwithstanding the severe frosts late in March we have a fair show of Apricots, which are swelling rapidly, the trees having abundance of foliage, so that where evergreen branches have been employed as protection they should be removed a few at a time, so as to inure the foliage gradually to full light and air. Canvas or other screens being employed must be used whenever the nights are frosty, removing them in the morning early and letting them down late at night, being guided in those respects by the weather. The foliage will probably soon be infested with the green caterpillar (*Ditula angustiorana*), which folds itself up in the leaves. It should be sought for—picked off or crushed by the finger and thumb. Peaches and Nectarines have set well, and, like the Apricots, are very forward in foliage, which is quite as tender as the blossom and young fruit; therefore the protecting material must be employed at night whenever there is an appearance of frost. Aphides will probably soon infest the Peach, Nectarine, Plum, and Cherry trees. Tobacco juice diluted with six times the quantity of water, strained, and the trees syringed therewith is an effectual remedy, applying it during a mild calm evening. If mildew appear upon the Peach and Nectarine trees dust thoroughly with flowers of sulphur. Keep a keen eye upon the Gooseberry bushes for caterpillars, and destroy them at once with hellebore powder applied with a dredger. Keep down weeds by using the hoe frequently, tap-rooted weeds being forked out. Strawberry plantations should be mulched with half-decayed litter. It is beneficial in keeping the soil moist by lessening evaporation, and being well washed by rains forms by the time the fruit is ripe a good surface for the fruit to rest upon. A mulch of some kind is quite necessary, as the rains drive the soil more or less upon fruit that is staked or which rests on wire (estacoline) supports; but we allude to this subject now to point out the necessity of a mulch in order to secure as much moisture as possible in the soil when drought comes.

FLOWER GARDEN.

Cannas if not yet started should be at once placed in heat. A nearly spent hotbed covered with a few inches of decaying leaves

answers well for plunging the roots in, they doing better in this way than when potted. *Caladium esculentum* and other fleshy-rooted plants employed for bedding may be treated in the same way. *Erythrina*s are fine when planted-out in warm situations. They should now be started in gentle heat, and prepared for planting-out in June. When the young shoots are a few inches long take them off with a heel if increase be wanted; if placed in a hotbed they soon strike. Subtropical plants raised from seed as before advised should be potted and grown-on in gentle heat, so as to have them strong for turning out early in next month. There is plenty of time for raising plants of *Amaranthus*, *Chilian Beet*, *Ricinus*, *Zea*, and other of the quick-growing subtropical plants, those raised from seed sown now being usually superior to those from earlier-sown seed. *Dahlia* roots may be planted-out in the open ground, planting them about 4 inches deep, and an inverted flower pot will give all the protection required.

Lawns require frequent attention in sweeping, rolling, and mowing in order to secure a close bottom. Daisies disfigure a lawn; perseverance in grubbing them up is the most certain means of riddance. Other coarse weeds should be removed in a similar manner. If their removal cause any bareness dress and fill-up the holes with a little fine soil, pressing it down with the back of a wooden rake, sowing seeds of the Suckling Clover and the finer Grasses, such as *Cynosurus cristatus*, *Festuca tenuifolia*, *F. duriuscula*, *Poa nemoralis sempervirens*, and rolling them in well. The grass verges should be well rolled and then be cut with the edging knife after rain, when the turf will be soft and the operation easily and neatly done. The verges after being cut will have a much better appearance than before, and much after-labour with the edging shears will be saved.

Gravel walks quickly become weedy at this time of year. By keeping the weeds well under now much trouble will be saved at a later period. Walks too full of weeds for hand-weeding may be hoed about an inch deep and have the surface raked during dry weather until the weeds are destroyed. This will brighten the surface wonderfully, rains washing the surface clean, which can afterwards be made smooth with the roller.

FRUIT HOUSES.

Vines.—Muscats when in flower set most freely with a night temperature of 75° to 70°, and 85° to 90° by day with a free circulation of air. Liberate the pollen by gently tapping the bunches or shaking the Vines at mid-day. Encourage late kinds of Grapes by damping frequently and syringing freely morning and afternoon. Keep the evaporation troughs well filled with liquid manure, employing it for damping the floors, &c. Admit air early and moderately, employing no more fire heat than is absolutely necessary, closing early in the afternoons of bright days so as to husband the sun heat, which is very much more beneficial than fire heat. Thinning must be proceeded with as soon as the berries can well be distinguished. Those that take the lead in swelling and having stout footstalks are likely to swell well and stone. Thinning at this time of year should be done on dull days or in the cool of the morning or evening. It is much more comfortable for the operator, and contact with berries, when the hands of the thinner are heated, is not likely to favour good finish. Superfluous bunches must be removed with no sparing hand. See that the borders have sufficient water, and that crops swelling the fruit have a good supply of atmospheric moisture, and those colouring have plenty of warmth by day with moderate ventilation, not omitting to leave the upper lights a little way open at night. Fire heat will only be necessary in the earliest house after the crop is fully ripe in cloudy weather to admit of free ventilation.

Peaches and Nectarines.—The fruit in the earliest house is fast approaching ripening; when it begins to ripen the supply of water should be gradually lessened and the syringing discontinued. If the foliage overhangs the fruit the removal of some of the leaves is imperative, the shoots being well tied-in so that the fruit may have all the sun and light possible. The fruit when nearly ripe should be kept from falling on the ground by netting stretched beneath the trees to catch such as drop. Disbud and thin the fruit in the succession houses, but do not be in too great a hurry about the later. Let the first thinning be done when the fruit is the size of a horse bean, leaving about twice the quantity it is intended the trees should bring to maturity, and wait before further reducing the number of the fruit until they swell prior to stoning. If they pass this stage well remove all superfluous fruit, for we have never found any to drop of any consequence after this stage is passed. Leave the quantity of fruit required—those best placed on the shoots—for the sun and air to have access to them. Keep the shoots well tied-in. Attend well to the watering of inside borders, not superficially, but make sure the roots are reached by it, syringing morning and evening. Keep the late houses cool by free ventilation, so that the succession of fruit may meet that of the earliest in the orchard house or on walls.

Melons.—Success in Melon cultivation depends upon a firm soil of a rather strong adhesive character but not devoid of grit. When the soil is light, loose, and rich the shoots are long-jointed, the leaves thin and flabby, not enduring sun; the fruit then does not set well, and those that do are light in weight for their size

and very indifferent in flavour. It is necessary that the shoots be thinly trained to prevent overcrowding. Keep the atmosphere dry and well ventilated when setting, being careful not to allow one fruit to take the lead upon a plant, watering well when the fruit is swelling, and keeping dry when ripening. Do not spare the knife after the fruit has commenced swelling freely, keeping the principal leaves fully exposed to light and air. Attend to setting the blossom in bright weather, nipping-out the points of the shoots one joint beyond the fruit. The earthing of plants in frames must be attended to, the fruit when swelling being placed upon a slate or inverted flower pot, sprinkling the plants at closing time through a fine rose, but avoid wetting the neck or collar, which should be kept free of leaves or canker will ensue. It may be kept in check by rubbing until dry with quicklime, and prevented by placing quicklime around the stem. Attend well to linings, maintaining a good internal warmth, watering with tepid water as required once or twice a week. Sow for succession.

Cucumbers.—In the hottest part of the day the plants will require slight shade from bright sun, but shade them as little as possible; in houses with the lights facing east and west shading will not be necessary. Syringe in the afternoon from 3.30 to 4 o'clock, well damping the floors several times a day in bright weather. Apply liquid manure to the roots about twice a week. Thinning the shoots, stopping, training, and top-dressing must be attended to as required. In pits and frames timely attention will be required in stopping the shoots one joint beyond the fruit, removing any superfluous shoots and bad leaves as they appear, earthing as the plants advance. Attend to the linings, watering with tepid water, sprinkling overhead at closing time—about 8 to 8.30, and continue the night coverings, especially when cold. Pot-off the ridge kinds, and grow-on preparatory to planting out.

Orchard House.—The prospects of the fruit crops are cheering. Apricots are well set and should be slightly thinned, but not until the fruit is fairly swelling. Strong or superfluous shoots should be pinched or rubbed off, and all shoots likely to interfere with the symmetry of the trees should be pinched. The green caterpillar not unfrequently preys upon the young shoots and leaves; it may easily be detected by the leaves being drawn together. They should be unfolded, the caterpillar removed or destroyed by gently pinching the leaves infested. Abundant supplies of water will be required. Weak liquid manure may be given twice a week. This applies more particularly to trees carrying a heavy crop of fruit. Aphis is very troublesome upon Peaches and Nectarines, the fruit of which set well. Syringing must be resorted to every morning about seven o'clock when the day promises to be fine; but this, though it checks the insects, is not always effectual in eradicating them, and fumigation may be necessary. It should be done upon a calm evening and in moderation, with the foliage of the trees perfectly dry. Quassia chips 4 ozs. to a gallon of water boiled a quarter of an hour, strained, adding whilst cooling 2 ozs. of soft soap, make an useful solution in which any shoots infested with green or brown aphis may be dipped; where dipping is not practicable apply the moisture to the infested parts with a soft brush. If mildew appear dust with flowers of sulphur. Black fly on Cherry trees yields to repeated fumigations or diluted tobacco juice. Cherries to set well require abundance of air. If the fruit set very freely as it usually does upon trees under glass, especially trees in pots, thin it with scissors. Ventilation must be carefully attended to. In mild bright weather the ventilators will need to be opened from seven to eight o'clock in the morning, but in cold weather they should remain closed or only slightly opened. Close early so as to shut in the solar heat; no danger need be feared from a rather higher temperature during the latter part of the afternoon. Water will be required liberally by the various trees now they are in growth, none requiring it more freely than Figs, which if once allowed to become too dry will cast the young fruit.

PLANT HOUSES.

Stove.—Amaryllises which have ceased flowering and requiring more pot room should be potted forthwith and before the young growths are considerably advanced, or they receive a check which is not favourable to a vigorous growth. They like rather strong loam, good drainage, and the roots disturbed as little as possible. Pot firmly, and instead of mixing manure with the soil feed the plants with liquid manure. *Gesnera zebrina splendens* and *G. exoniensis*, *Eucodonia*, &c., which have been dried-off, should now be potted, placing six or more strong corns in a well-drained 8-inch pot, covering about an inch deep, and employing a compost of turfy loam with a fourth of leaf soil and a sixth of sand. Water sparingly until growth takes place, then more freely as it advances. *Ardias* should have a light airy position when they are in flower. Their berries do not set freely in a close moist atmosphere. Seeds may now be sown in gentle heat, potting-off the plants when large enough to be handled and growing them on. It is necessary that the plants during their entire growing period have sufficient light to keep them sturdy, upon which depends their value for decorative purposes. Shift *Gloxinias* into larger pots, potting-off seedlings, which if grown-on during the summer will bloom finely in autumn. Afford liquid manure to plants showing for bloom in small pots; this is often preferable to

increasing the size of the pots. *Achimenes* when commencing flowering are benefited by the application of liquid manure not too strong. *Poinsettias* which were cut-back as advised will have grown so as to afford cuttings of 4 to 6 inches in length. These, if taken off with a good heel and inserted singly in small pots in sandy loam with a little peat, strike freely in moist brisk heat and shaded. Old plants answer fairly if they are shook out when the shoots are 2 or 3 inches long and the plants placed in heat until fresh roots are formed, then keep rather cool so as to secure sturdy growth. Turfy loam with about a sixth of sand will grow them well.

Ferns are generally grown in too much heat and have too little air, which causes their fronds to endure only a short time in a cut state, and upon the plants they also sooner become sere. Air should be admitted rather freely and the atmosphere kept cool and moist. Stove Ferns in a majority of instances do not require a higher temperature by artificial means than 60° to 55° at night from this time up to October, and a rise of 10° to 15° by day. Sprinkling overhead must be practised morning and evening, or in dull weather damping every available surface twice a day will be sufficient. Aphides and thrips are kept under by fumigation, which must, however, be moderate and the foliage of the fronds dry. A majority of *Adiantums* have the young fronds injured by fumigation, notably *A. farleyense*, which it is best to remove to another house when the house is smoked. Liberal supplies of water will be necessary now that the plants are in free growth.

Nepenthes when commencing growth require slight shade, but they must be kept near the glass, having abundance of water at the roots, and be syringed in the morning and early afternoon, maintaining a moist atmosphere by frequent sprinklings of all available surfaces. Potting should now be done, avoiding over-potting. Provide very efficient drainage, as should the soil become sour the plants never prosper. A compost of equal parts of chopped sphagnum and very fibrous brown peat with the small particles sifted out, a fourth of crocks, and a sixth of charcoal broken up rather small, with the barest sprinkling of sand, form a suitable compost.

Orchids.—The temperature should now be increased. East Indian house, 70° to 90° by day, 70° to 65° by night; *Cattleya* house, 65° to 75° by day, 65° to 60° by night; *Odontoglossum* house, 60° to 70° by day, and 60° to 55° by night. In the East India house *Aërides*, *Phalænopsis*, and *Saccolabium* should be kept constantly moist and the foliage clean by frequent sponging with clear water. *Odontoglossum* and cool *Orchids* generally do best in a lean-to house facing the north. Some few require a little more heat than others, as *O. citreum*, *O. hastilabium*, and *O. novium*. *Lycastes* with the *Odontoglossums* named should be grown at the warmest end of the house. *Masdevallias* do best in the coolest part grown by themselves. Repot after flowering. They should not be placed in too large pots, especially plants with unhealthy roots, which should be carefully cleansed by washing with tepid water. *Cymbidium* repot. Good drainage is necessary. Rough peat with small lumps of charcoal is a suitable potting material. Free watering is necessary. *Stanhopeas* after flowering should have the moss renewed about them, and the baskets frequently dipped in tepid water. Sponge the leaves of all *Orchids* frequently to keep them free of scale or other pests, which if not promptly met soon disfigure the foliage. Fumigation is the best remedy for thrips, but it must be done moderately.

TRADE CATALOGUES RECEIVED.

Francis & Arthur Dickson & Sons, Upton Nurseries, Chester.—*Catalogue of Bedding Plants, New Roses, &c.*
George Cooling, Bath.—*Catalogue of Roses in Pots, and Lists of Herbaceous and Bedding Plants.*

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense. Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

LOCAL HORTICULTURAL SOCIETIES' RULES (W. B. A.).—If you refer to our No. 538 you will there find them fully detailed under the heading "Village Horticultural Societies." They fill between two and three pages.

LONDON SHOWS (*Juvénile*).—The first summer show of the Royal Botanic Society will be held at Regent's Park on May 22nd; and the great summer show of the Royal Horticultural Society will be held on May 28th, 29th, 30th, and 31st at South Kensington.

ROSE OF SHARON (*E. S.*).—We cannot identify the plant from the small specimen of seed you sent. Send a portion of the plant itself when in bloom. We do not know any plant which is called the Rose of Sharon.

TRA-SCENTED ROSES NOT EXPANDING (*Quatin*).—They would probably

have expanded had they been kept in the vinery; the lower temperature of the greenhouse has caused a check to the plants. There is no remedy but more warmth; or the atmosphere of the greenhouse may be too moist, the plants being syringed overhead, whereas they should be kept dry, but should have plenty of water given at the roots. Continue the plants in the greenhouse, affording them a light airy situation.

FRAXINELLAS (P. H. G.).—Prick the seedlings out 2 inches apart in pots or boxes, and place them in a light cool frame, in order to produce sturdy and healthy plants for planting-out in June. You have been fortunate in raising a stock of plants so quickly. The seedlings will thrive in a compost of loam, peat, and leaf soil. Keep them close and shaded from bright sun for a few days until they commence rooting in the fresh soil, after which let them have light and air gradually until they will endure full exposure.

INDUCING CROTONS TO FLOWER (E. Martin).—You will more quickly induce flowering by growing on the plants in a light airy situation until they are a good size than by cramping a small plant in a small pot. It is essential that the plants be large, and then by confining the roots and being sparing of water when the growth is complete, the growth being made in full light so as to thoroughly ripen the wood, the plants will flower. The most luxuriant Crotons that we have seen were grown by Mr. Legg at Cleveland House, Clapham Park. The plants, which had been grown rapidly in a high temperature and a light house, flowered profusely when they were two years of age, and they had no check whatever. We think *C. volutus* was one of the plants that flowered, and was at the time probably the finest and most luxuriant plant in England.

VINE SHOOTS DECAYED (D. C.).—The roots of the Vines must be in sour or stagnant soil, which has caused them to decay, or they must have sustained injury by some other cause. If your border requires draining drain it at once, and if fresh soil is necessary remove the old soil down to the roots and apply turfy loam or the best garden soil at your command, and mulch it with manure. Healthy surface roots are what you must encourage, and you must also ventilate carefully. It is possible that you do not admit air sufficiently early in the morning. Give air earlier and gradually; do not syringe the Vines nor provide a damp atmosphere in the house. We fear you will not be able to entirely prevent the evil of which you complain this season, but you may check it considerably.

PRUNING THUJA LOBBI (Subscriber).—You may clip your hedge any time during showery weather from May till September. If cut earlier in spring or later in autumn than the months named the young growths issuing are liable to be injured by frost.

PLANTING BELLADONNA LILIES (Idem).—The proper time for planting is in the summer, as soon as possible after the foliage has withered. You would find this *Anaryllis* quite hardy at the front of a north wall in Kent. When once established the bulbs should not be disturbed. We have seen it flourish on a south border a hundred miles north of London. Make the soil good, and plant the bulbs 6 inches deep.

PLANTS UNDER TREES (Ecc).—Why has Ivy failed repeatedly under your Elm tree? We conclude that it was starved to death by the greedy Elm roots. The exercise of a little care and painstaking for two or three years will enable you to overcome the difficulty. Once get the Ivy established and it will hold its own and prosper. Do this—make rich stations, say a dozen, by stirring plenty of rich manure among the soil; select large strong plants with large balls of earth and roots, or else turned out of large pots; plant one of them in each station on a little mound raised a few inches above the ordinary surface; give frequent liberal doses of sewage or liquid manure during the season of growth; spread rich soil upon the surface around each plant, and as the branches spread get them down among it to induce a prompt emission of roots, so as to render them self-supporting as quickly as possible. The Elm roots will soon lay hold of the soil in which the Ivy is first planted, but by close attention to surface-dressing, pegging, and watering you may bid them defiance, and afford another example of the truth of the time-worn maxim, "Perseverance overcomes all things." *Vinca minor*, the Small-leaved Periwinkle, answers well under trees, so does *St. John's-wort*, but to neither of them would we give the preference for your purpose.

ROSE LEAVES DISEASED (M. J.).—The disease attacking your Rose leaves is the "black spot." It often attacks Roses growing in damp and ill-ventilated houses. It is a fungus; there has been, however, a quantity of red spider upon the foliage of your Roses. Try Fowler's insecticide, or any of the other preparations sold for the purpose of killing insects. An experienced Rose-grower says, if disease of this kind once attack plants the only cure is to cut away the damaged shoots, even if you have to cut the plant down to the ground.

HIMALAYAN BAMBOO NOT GROWING (W. R.).—Your Bamboos which have not grown for two years are doubtless dead. Two years ago many established plants of this Bamboo, growing in the southern counties and in Ireland, bore seed and died. Your only remedy is to plant stout young seedlings.

PROPAGATION OF POLYANTHUS AND AURICULA (Jas. Davies).—After the plants of your border varieties have done flowering do not top them as you propose, but prepare a bed of rich gritty soil on the north side of your wall; take up the plants and divide them into as many shoots as they will afford, which dibble firmly into the bed, and by attention to watering and keeping free of weeds they will become good plants by autumn, when they should be transplanted to the bed or border in which they are to flower next spring. Both plants are easily raised from seed, which should be sown immediately in any sunny garden border.

VARIOUS (Caroline).—If the *Asaleas* are really without foliage the plants have either suffered by neglect in watering or were left out during a frosty night or two in autumn. Do not forget, however, that *Asalea* blossom is frequently so dense as to quite conceal the foliage. A temperature of 89° for Kidney Beans is unnecessarily high. A steady night temperature of 68° is quite hot enough, and if it rise 30° or 30° higher from solar heat in the daytime that would, of course, accelerate growth beneficially, provided due attention is given to watering and a free use of the syringe once or twice daily. The *Rose Souvenir de la Malmaison* is not a climbing variety, but there should be no difficulty in inducing it to put forth vigorous growth and flower freely; it is probably suffering from poverty of soil. Apply a heavy dressing of manure and plentiful waterings. *Maréchal Niel* is somewhat sickly, being much affected by the stock on which it is budded. We have one plant on the common Briar that in five years has covered the side and gable of a building some 30 feet high, and has also spread as far along an adjacent wall; yet others also on Briars and planted with equal care have made no appreciable progress. Dig-in manure about the roots. Give

plentiful doses of sewage or liquid manure, and if it has been starved and is healthy you will soon have strong shoots in abundance. Climbing plants will answer very well in your conservatory facing the north. The effect of the loss of the direct rays of the sun would be seen in a somewhat tardy spring growth, and if you plant *Roses* in it they would afford plenty of flowers, but not early. In most gardens in the south advantage is taken of walls and buildings to plant *Tes-scented* *Roses* facing the north, where they are quite shaded from the sun, in order to obtain a supply of flowers after those in sunny positions have ceased blooming.

SHADING FOR AN EXOTIC FERNERY (W. G.).—A roller blind may easily be applied to the roof of a Cranston's patent house by causing it to run up and down on light iron rods curved and fixed a few inches above the curve of the roof. A natural, graceful, and far preferable shading would be afforded by climbing plants planted inside the house and trained up under the roof. *Lapagerias* would grow and flower well under your ribbed glass, so would *Hoya carnea*; but *Tacsonia Van-Volxemi* and *Passiflora cærulea* would be preferable for the quick production of shade, both making growth with great rapidity and freedom.

IN PÆIDUM ACAULE (H. C. P.).—The seed should be sown very thinly, so that the seedlings do not become crowded in their young state, and about seven plants should be transferred to a 6-inch pot; or the seed may be sown in 6-inch pots and the superfluous plants be drawn out. The plants should be raised in a cool and very light frame, keeping them close to the glass, and eventually removing the lights entirely, except in stormy weather and during drenching rains. Rich soil and abundant supplies of water are requisite for growing the plants healthily. When well cultivated the plants produce a charming effect, but if either starved or drawn they have a miserable appearance. This annual grows and flowers freely in moist soil in the open air.

SOIL FOR MYRTLES (E. G. B.).—Plants that have remained in tubs for many years require rich surface-dressings of loam and manure. Remove with a pointed stick a goodly portion of the old soil, digging down several inches near the sides of the tubs, and replace with a compost of two-thirds of turfy loam and one-third of decayed manure, pressing it down firmly. Over the soil spread a covering of pure manure an inch or two thick, on which soil may be sprinkled for imparting a neat appearance. Do not fill the tubs too full of soil, but leave space for holding sufficient water to percolate through the entire mass. This is a little point of great importance. Filling pots and tubs too full of soil is the cause of many plants being unhealthy.

POLYANTHUS (J. W. Luck).—You have a very good strain of border *Polyanthus*, and you will be able to improve it even more if you persevere and select the seed from the best flowers.

PYRETHRUM AUREUM LACINIATUM (J. C. C.).—This forms a soft and elegant marginal line to flower beds, but we think for producing a golden panel in a carpet bed the old *Golden Feather* is the more suitable. The lacinated variety is paler in colour than its prototype, and does not produce such a dense surface of colour.

HARDY ANNUALS DISTASTEFUL TO SLUGS (J. W. J. D.).—There are few plants that snails and slugs will not devour. We have observed, however, that *Nasturtiums* (*Tropæolums*), *Convolvulus minor*, *Limnanthes Douglasi*, and *Venus's Looking-glass* are not so much eaten as some other annuals; but our practice is to grow what plants are desired and destroy the slugs. When the annuals are aboveground sprinkle a little dry soot over them late in the evening or early morning; this makes the plants very distasteful to the snails and slugs.

ANTS INFESTING FLOWER BEDS (Idem).—Disturb the nest well with a fork after sprinkling guano over it, and again sprinkle the soil with guano after disturbing, or water well with diluted ammoniacal liquor from the gas works. Guano sprinkled in their runs and over the nests will soon cause them to migrate to other quarters.

ANTS (W. L. A.).—Arsenic mixed with honey poisons them, but you had better drive them away by continuing to sprinkle guano over their runs and nests.

INSECTS (W. T. Relford).—The insect ravaging your Rose trees is the *Curculio pyri*. Spread a white cloth beneath the trees and shake them. The insects will fall upon it.

NAME OF FRUIT (J. George).—Birmingham Stone Pippin.

NAMING PLANTS (S. A. B.).—All specimens that we receive are acknowledged, and named if we can identify them.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

CULTURE OF MANGOLD WURTZEL.

SINCE the first introduction of this root for cultivation in this country as cattle food great improvements, by the extension of sorts, has occurred. As being the first growers of them in our own district in 1827 we can well remember the amount of prejudice at that time raised against them, and for a number of years they made their way but very slowly in the estimation of farmers. They were called all sorts of names to bring them, or rather keep them, in disrepute. It was common to hear the observation, "What! are you going to grow those water-bags?" However, as time wore on people began to increase their growth, and they have ultimately found that the prejudice against them was founded on ignorance—viz., that they did not know how and when to use them. Now, however, the tide has set in strongly in favour of the growth of mangolds, and especially since we have the choice of sorts containing more sugar and nutriment for cattle-feeding. The sorts we have now for use

are the Long Red, the Yellow Globe, and Yellow Tankard; there are also some intermediate varieties. The variety called Sugar Beet, although containing a larger amount of saccharine than any other, yet they do not yield sufficient weight per acre to induce farmers to cultivate them in preference to the three first-named sorts.

The Mammoth Long Red is much grown, and prized more for its long-keeping properties than for rich feeding quality. It is adapted only for growth upon rich alluvial soils, but when we have grown it side by side with the Yellow Globe sort it has always deceived us as to weight. It grows so much above ground that it looks to be much the heavier crop, but in our own experience we have never in any instance found it equal the weight of the Yellow Globe sort, which is certainly the heaviest cropping variety we have ever grown; still we think that the Golden Tankard or Golden Intermediate possess higher feeding value than any of the Orange Globe varieties, although we have grown a greater weight per acre of the Globe than any other sort—viz., 55 tons per acre, washed perfectly clean, without the usual adherence of dirt at storing time, which probably in some instances assists in making the extraordinary weights we sometimes hear of, of 80 or 90 tons per acre. There is, however, a growing estimate by farmers of the value of the Yellow Tankard sort, it being a very deep yellow colour inside, very firm, and dense in the substance of the root. To obtain the greatest weight per acre the crop must be sown in the best land, and be sown very early—not later than the last week of April or first week in May. It is of slower growth than the other sorts, and it is our opinion that in case it was required to remain in the land during the winter it may be preserved in our ordinary winters if the rows were earthed-up with the plough in the month of October; it would, however, after a hard frost have lost a portion of its feeding value, like any other root which has been frozen.

The preparation of the land for mangold, if intended to be sown out of fallow, should begin in the autumn immediately after the harvest, and upon strong or heavy loams; the land must be fallowed even if it be quite clean, and after a couple of ploughings, with intermediate harrowings and rollings, it should then be deeply ploughed for the winter, and allowed to take the advantage of alternation from rain to frost. It will then not require to be ploughed in the spring, but merely scarified and harrowed, thus retaining all the advantages of the weather-beaten and pulverised surface; in which case, if yard dung or town manure is used, it should have been applied in the autumn, otherwise the manure used should be artificial guano or nitrate of soda and superphosphate, to be applied by the drill on the flat or level. If only 1 cwt. per acre of guano can be safely used with the drill without destroying all or some of the seed it is best to apply only 2 cwt. superphosphate and 1 cwt. guano by the drill, any extra guano to be sown broadcast and worked in by the first horse-hoeing after the plants are up and strong; if sown earlier it encourages the weeds immensely. In the use of nitrate of soda for mangolds it is best sown broadcast at two or three different times during the growth, the superphosphate to be used being drilled with the seed. It should be always borne in mind that it is difficult to apply the heaviest possible dressing for mangold without reaping the full advantage, for the crop of mangold may not use up all the manure; but it will be satisfactory to know that you will have obtained the best possible crop of roots with probably a residue of the manure available for the succeeding crop of corn. We recommend that mangold when heavy dressings are used should be grown on the bank or stretch upon the light and shallow soils, such as sand or gravel. In applying the manure by this system we usually make up the stretches, then lay out the dung and spread between the banks; otherwise if artificial manure is used it is sown broadcast and the stretches reversed, which buries either sort of manure in the middle of the bank. Upon the home farm we recommend that the seed should be planted by hand, not less than two nor more than three seeds at 15 inches apart, and pressed into the soil with the finger and thumb about an inch in depth, which will take about 5 lbs. of seed per acre. We have succeeded very well by using the hand drill such as is used by gardeners, costing 10s. 6d., which is the most expeditious method of seeding on the ridge or stretch. This will take from 6 to 7 lbs. of seed per acre. The advantages of the ridge culture is that the land can be horse-hoed earlier between the rows, and on light land it deepens the soil available for the growth of the plants. Upon this system we grow the plants 2 feet apart between the rows, and 15 inches apart in the rows. At this distance we find the greatest weight and the best feeding quality can be grown, as moderate-sized roots we consider the most nutritious. Although the heaviest crops are grown by early sowing, it is important sometimes, particularly upon the home farm with only a limited acreage of land under tillage, to take another crop before the mangold. We have grown on various occasions 25 tons of mangold per acre, drilled after midsummer by once ploughing after the hay crop or after a crop of rye cut for fodder; we sometimes, however, cut the rye for straw only, it being very valuable as straw is now selling. The

rye being well out in ear by the middle of May it is often cut, tied into sheaves or carted loose, ricked, and heated in rick for feeding purposes upon the principle of American oat hay. After these crops the mangold generally succeeds well, not being so much injured by insect enemies—such as the fly, wireworm, grub, and white slug—as when grown after a fallow preparation. When the seed has been drilled on the flat so late as the last week in June we have grown fine crops of mangold by drilling them closer between the rows, and also leaving them nearer in the rows—viz., 18 inches by 12 inches; the plants must, however, be taken up at the usual time, although in full leaf and growth, and this is favourable than otherwise, for the roots are sure to keep well in heap in this way, for the early-sown and ripe roots always decay most in the heap. We find that late-sown roots will bear the blows at pulling time, and any injury and bruises to the roots will heal in the heap, but when ripe roots are much bruised they often go off in heap with rotten black spots upon them, which often spreads and endangers the whole bulk. When this tendency to rot occurs the heap should be looked over in the spring of the year, the defective roots picked out, and the heap made up again and rethatched, they will then keep until any time in the summer and autumn.

The feeding value of the crop often depends upon the storing. We recommend that the roots be taken up the second week in October, or earlier if there are many acres to get up. It sometimes happens that the roots are a considerable distance from the homestead, in which case they may be heaped in the field in small round heaps and earthed over, and removed as required for cattle. In the same way they may be what is commonly termed pitted in the field in small heaps when required for sheep to be fed upon the land where they grow; but when mangolds are used for sheep-feeding in the open field they are usually pulled several weeks before feeding, and allowed to lie and get withered. In this way we have seen sheep do remarkably well during the months of September and October, being hurdled off as required, and receiving a little bean or barley meal at the same time. We have on some occasions made capital fat cattle without giving any other root food but mangold, and commencing in October. At this early period many farmers object to use them for fattening cattle, but we have never hesitated during the whole year from using mangolds, for the reason of their great feeding value as compared with Swedish turnips. We have found that 56 lbs. of mangold per day is equal in feeding value to 70 lbs. of Swedes for a fattening bullock; but for either root we always cut them with Gardener's cutter, and mix the bean or barley meal with the cut roots. In this way if the mangold is used in the early part of the season it never purges the cattle. We recommend great care in taking up the roots when intended to be stored in long heaps, the common plan being to make the heap about 8 or 10 feet wide at bottom, and carried up to a point, and covered with seaweed if available, or with straw, and then thatched. After about a month or five weeks the heap should be covered about 6 inches with earth upon the thatch, and it is well to have a few drain pipes set on end at the top of the heap to allow any heated air to escape. Care is required, which is not always properly attended to—that is, when the roots are topped the grass should be twisted off by hand. This will leave the heart bud entire. They will then grow out a little in the heap, which is quite necessary, as they are sure to keep better than when the stems are cut off, as well as the greens, close down to the bulb. Some of the finest mangolds we have ever seen have been grown near the seacoast in the eastern and south-eastern counties. This is to be expected, because it is well known how desirable it is to apply 2 or 8 cwt. of salt per acre on the generality of soils, particularly in the midland counties and inland districts. In cultivating mangolds it is common to attempt growing the roots as large as possible, but instead of growing immense roots, which only astonish women and children, we prefer growing more roots to the acre of a moderate size, believing that roots weighing from 5 to 7 lbs. each are the most nutritious. It must be confessed at the same time that it is more labour to prepare the smaller roots for cutting for cattle. Especial care should be taken to obtain seed grown from a stock which throw but few roots, indeed, only a single tap-root is best. The manure and culture make some difference in this respect.

Before concluding this subject we must remark that the peculiar advantage of mangold culture in preference to the varieties of turnips or any of the cabbage tribe, is that it is well adapted for culture when land is out of chalk. It may also be repeated with impunity, for when properly cultivated and manured we have known fine crops for several years in succession. This cannot be done with any advantage in the case of turnips, cabbage, rape, &c., because in the absence of a fair portion of chalk in the land the roots are sure to become clubbed and go off. Thus we claim a most important value for mangold over and above other roots usually grown on the home farm. This question of absence of chalk is a matter not easily rectified except at great cost, particularly in lands distant from chalk soils. In conclusion, we reckon that upon the generality of soils the mangold crop will not only give one-fifth more feeding value per ton, but one-third more weight per acre than Swedish turnips, thus growing

the cattle food required upon a reduced area and leaving more land for sale crops.

WORK ON THE HOME FARM.

Horse Labour.—It will now be requisite to plant the latest sorts of potatoes. The sooner this is done the better. Potato planting is best done with a one-horse plough, because two horses tread the land too much. Late sorts may well be set wider apart between the rows, every third furrow will bring the rows about 30 inches. This gives room for horse-hoeing, and also requires the one-horse plough to earth-up the lines, which we think is much better done than by the double mould-board plough, particularly at the wide distance, although the double mould-plough answers very well for the early sorts, which are usually planted 2 feet between the rows. In hilling the potatoes with the plough we prefer, instead of hilling both sides of the rows as we proceed, to hill one side throughout the piece and a day or two afterwards to proceed and hill-up the other side of the row. This gives time for any haulm which may have been pressed down by the first furrow to again become erect, and thus the hills may be made more perfect in height and shape, which we consider essential. The horses will now be required to roll-in the clover seeds. We find that much land which would have been seeded at the time of sowing the Lent corn has, owing to the showery weather, not been done. If, therefore, the clover seeds are now sown followed by the ring roller they will most likely be buried properly; if not, the chain harrow will complete the work.

Manual Labour.—Men will now be employed in sowing manures such as guano or nitrate of soda on the corn or grass crops, also in the furrow with the potato sets. Guano we prefer for potatoes, and to prevent its flying before the wind we mix it with some damp ashes. The women will be employed in cutting the potato sets and also planting them when the weather is favourable. We prefer to plant sets of the late sorts of potatoes cut from large tubers. It is also requisite to obtain the most recently propagated sorts which have never yet been tainted with disease. This, together with a change of soil, is the best and most likely method of securing sound produce. The women now should be constantly employed in weeding the clovers, the young wheat, and the early grass land. In planting roots for seed, particularly mangold, it is not only necessary to select the best-shaped roots, but also to plant only those which have the heart-bud uninjured. They will then grow up with a strong single stem; whereas if those roots which had the stems cut close to the bulb are planted they will throw out a number of sprouted stems, which when run up to seed become a tangled mass, which is neither favourable for the produce of seed nor saving it. Mangold seed never ripens evenly, therefore the earliest seed stems should be picked first. In order to facilitate this first picking we prefer to plant the roots in lines 4 feet apart and 18 inches or 2 feet in the rows; and as it is sometimes requisite to be able to pass between the lines, when the seed begins to ripen stakes and small poles or rods are set up on one side of the lines for the seed branches to rest upon. In this way there will be a pathway between the rows for picking the earliest seed stems. In planting Swedes or turnips for seed it is only necessary to select the bulbs for colour, shape, and quality—that is, weight in proportion to size; and in case of planting an acre or more of land it is difficult to prevent the small birds from taking the lion's share of the seed; we therefore, in order to scare them away by boys or men, leave a pathway through the planted ground.

PIGEONS—HINTS TO YOUNG AMATEURS.—No. 2.

ANENT my No. 1 "Hints to Amateurs," writes a valued correspondent, "I have often thought that letters on Pigeons, poultry, &c., for homely and home fanciers would be acceptable to many readers of our Journal; I mean as a change from high-class writings addressed to exhibitors. I think sometimes that writers on home topics forget that there are infant classes ever in formation in the schools of gardening and allied interests pertaining to home pursuits. Do not class writers and class newspapers, in aiming (and properly so) at a high tone, occasionally, or even generally, forget these infant classes? Such a system of teaching would never do in our national schools." Thus encouraged by words with which I wholly agree I will go on, remembering and hoping to help members of those infant classes in the Pigeon fancy—members hereafter to become fully experienced and very clever fanciers. At one of the great Crystal Palace Pigeon shows I was really very sorry for a youth who again and again asked me questions about the birds. He was evidently one of these infant fanciers. I replied to him once or twice, but could not undertake to teach him with my head full of reporting the show, and with not a moment properly to spare. Such there are among our readers no doubt; so put your questions on paper, and I will do my best to answer them in my quiet study in my rectory, as I sit, with eyes now and then raised to look upon a glorious view upon which I have gazed with delight for well nigh a quarter of a century.

Turn we now again to Tumblers. They are among the cleverest

of Pigeons; their little rounded heads have more brain than sloping-forehead Fantails. They are clever in finding their way soon in and out of a new home, clever in following you about even into the house for food. I like to see them put their little knowing heads on one side as if thinking. I have spoken highly of Baldheads, and there is a variety evidently akin to them—viz., the Bearded Tumblers or Beards, so called from a little triangular patch of white reaching from the lower mandible a little way down the throat. Like the Baldhead, the Beard is a white-winged Pigeon. It is an old-fashioned sort, and getting, I fear, scarce; but there used to be about Bristol very well marked, handsome, Black Beards of lustrous plumage and good form. Flying Tumblers have a little gone down since the French and German war brought into great prominence the powers of the homing birds; but it does not suit everybody's employment to walk or drive distances in order to fly homers. There are many who cannot, perhaps, more than once a week get away from their homes; for such the Flying Tumbler is the bird. A fancier of this Pigeon may be within hearing of his shop bell watching the tumbling of his Pigeons, for they soar just overhead. I have known blacksmiths and carpenters and others, whose work was in the yards of their homes, have great enjoyment from their Tumblers. And now for an anecdote of a grimy son of the forge, a master blacksmith, who was a Pigeon crony of mine when I was a boy. I had set my heart upon a certain Red cock bird of the blacksmith's to match with a hen of mine. I found the smith, leather-aproned, holding between his knees a horse's foot, in the act of shoeing him. "What! young gentleman, want me to sell you the old Red cock! Why, I've had him these eight years. I couldn't do it, sir." What boy is willing to give up what he's set his heart on? So I offered the very extreme limit of my purse, but in vain. To make the owner's mind still more firm down came from the air at that minute the old Red cock. He gave a provokingly charming somersault just before he came down, and entered his loft above the shoeing shed in which we were standing. Then I heard his merry rattling coo as he came in to take his turn on the eggs. I felt I was done, and so I was. The worthy blacksmith did not let me have the bird; that provokingly nice tumble and merry rattling coo secured him his home until he died. Another Tumbler friend of mine was a carpenter in a large way of business, and whose birds built high up in the unceiled or partially ceiled roof of his barn-like shop. His were the wildest Tumblers I ever knew; they paired as they liked, and as he had no children they were never petted or handled, but were flown (some forty of them) of a morning, and rare tumbling birds they were. His plan was to introduce a good Black Baldhead or two, and they crossed with his old stock. Thus he kept up the white wings, and then, as a rule, Baldheads were good performers in the air.

Next a word about making the birds fly. Not seldom it is with great difficulty that they can be got to ascend properly, and you cannot manage them if there be some very high building near, for they will settle upon that, and there the idle ones will sit and defy you. But it is not often that you have a high workhouse, or town hall, or gaol next door to you, and if you have not then you can generally manage to get them up. I would say, Do not let them out in winter too soon, but as they come out with a rush clap your hands, or shout, or wave a tall flag and send them up. Then, not unfrequently, failing the morning fly you can get them up in the afternoon before bed time; but this is dangerous in dull weather. The state of the atmosphere has a great deal to do with it; when other birds like to fly high so do Tumblers. Do not pelt or punish the birds, but get them to do their flying as a pleasure and without making them fear you, and so making them also shy and wild, for, unlike the Dragoon, the Tumbler is not a shy bird—almost familiar in some cases. I have known a three or four-o'clock fly in spring and summer be very successful. But give me for real enjoyment a good fly on a bright winter's morning. By the way, Pigeon fancying tends very much to rob winter of its dreariness. In winter the birds (all the fancy Pigeons) are in their most perfect plumage; it is then hard, firm, and bright. In the latter part of winter you are thinking of pairing-up, setting, changing, arranging, mating; so that while the garden is least accessible and interesting the Pigeon loft is especially an object of interest. So I say a Pigeon fancier has an advantage in this respect over many fanciers of other pursuits which can be followed only in summer time.

Besides Baldheads and Beards there are other distinct and prettily marked Tumblers. Thus—Mottles, Black, Red, or Yellow with a certain portion of white on the back, wings, and head, in some cases much white, but better with less white. The Yellow Mottles are very charming, and since flying Pigeons have had a class at our large shows I have seen some beautiful birds of this marking. Various other colours there are, and if the fancier has plenty of room he can enjoy feeding at his feet a perfect bouquet of coloured birds. Whatever colours he has, let him be very particular to have all pearl-eyed birds—that is, white eyes, not dark hazel eyes like Fantails'. The pearl eye the whiter and brighter the better. Also have as rounded and plump-shaped birds as you can get; not flat-backed like common Pigeons, but a certain roundness of back and also full-breasted. If you can get

them to tumble well, having no feathers on their legs, all the better; but often a mere sprinkling of feathers showing a Roller cross goes with good aerial performances, but the true Tumbler has little coral unfeathered legs and feet. The modern Tumbler of the Birmingham type is a larger bird with very heavily feathered legs, and now bred in very pretty colours—Mottles, Saddles, &c.—a coarser bird than the old dapper Tumbler, but a pearl-eyed and handsome, yea noble bird nevertheless, though the head and beak are certainly too long. I own a strong preference for the older class. In buying flying birds you must mind and not get degenerate, high-class, or short-faced birds, which are pretty, very, but not strong enough to fly well or for any length of time, and they very very rarely tumble at all, though I have once seen a coarsely bred Almond tumble admirably. In my next paper I will speak of the sort of home best suited for Tumblers, of their food, and of their indoor management.—WILTSHIRE RECTOR.

POND MAKING.

PURE water must always be considered a necessity for cows in

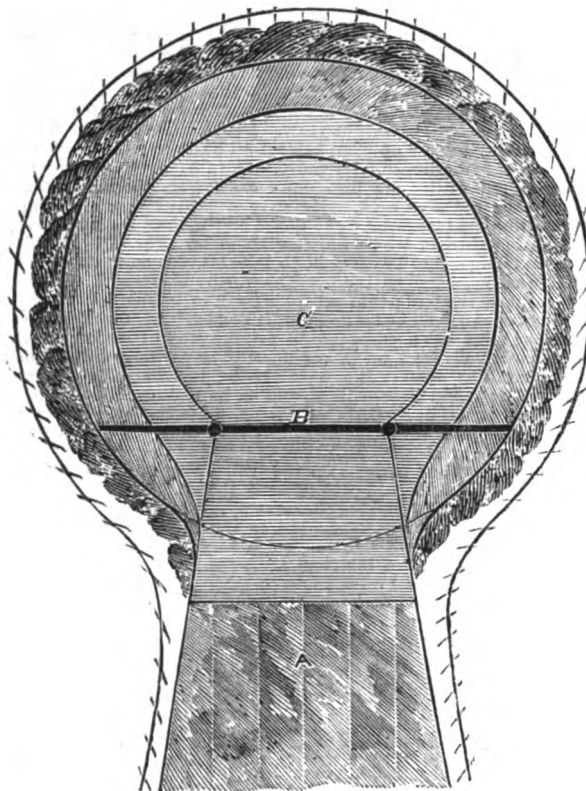


Fig. 51.—PLAN OF POND.

A. Paved entrance from the north | B. Cross rails at lowest part of pond
C. Body of pond.

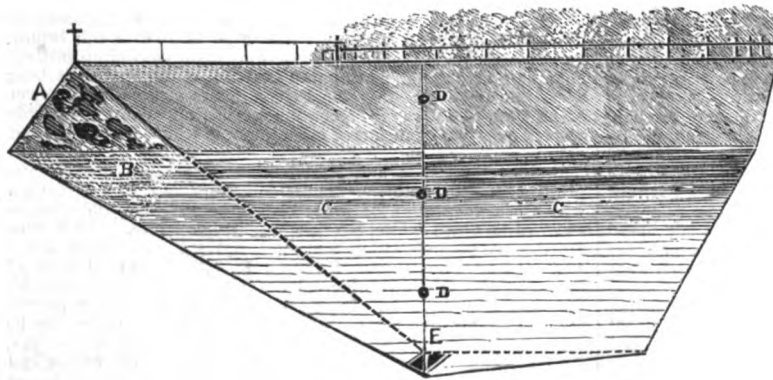


Fig. 52.—SECTION OF POND.

A. Approach from the north | C. Water
B. Paved entrance | D. Cross rails
E. Lowest point of pond

a butter-making dairy; it, however, often receives but little or no attention, the cows being allowed to drink anywhere, and very often at ponds tainted by the drainage from the farmyard. The question then arises how pure water is best to be obtained and made available. Where there are running brooks and rivers there will be no difficulty in providing water (although there may be) by securing a safe and convenient watering place where the animals can drink at all times without danger or difficulty. Where park or pasture lands are situated at high altitudes on chalk or stone formation it may be necessary to make a pond. In that case we propose, as the best plan, to make a pond near to a high road or farm road, where in case of a sudden thunderstorm a large quantity of water may be accumulated and preserved for future use. The excavation may be made 4 or 8 feet deep, of any required width, and surrounded by a single rail and high hedge of quick and privet to prevent evaporation, and the approach to the pond should be pitched or paved with flint or flagstones. In order that the cattle may drink without entering the pond, brook, or river the entrance should be guarded by two strong rails across it, so that when the water is low they may drink through the rails without entering the pond or brook. In the case of ponds they may be puddled with clay or concreted at bottom, which the entrance of the cattle may tread and injure, and it is in this way only that the last bucketful of water in the pond can be obtained by the animals without injury to the pond or to themselves in the brook or river. This plan of pond-making may also be carried out as a double pond available for two fields, or at the corner where three or four fields meet, the ditches or drainwork from each acting as feeders to the pond, or when full acting as waste drains to carry off flood water.

(To be continued.)

VARIETIES.

MESSRS. CARTER & Co. state that the lawns at the Paris Exhibition that were sown with their seed on the 8th of April received their first cutting with the mowing machine on the 29th of April, and that the French authorities are so impressed with the quickness of growth of the grasses that they have placed a large additional portion of the Exhibition grounds in the charge of Messrs. Carter, who have now sown about three-fourths of the grounds with their seeds.

FARMERS' prospects are, says the *Mark Lane Express*, certainly brighter to-day than they have been at this period of the season for several years past. The dark green of the wheats gladdens the eye, and the strong and multiform tillering of the plant is also a very promising sign. Even the thin pieces are filling up wonderfully, and if we get what is called a "following season" a good crop of the principal cereal may be regarded as certain. However, until the blooming season has passed we can have no real security for a good yield. Spring corn of all kinds also looks well. Grumbling just now is at a discount.

ORIGIN OF POULTRY.—Asia is the home of our most valuable domestic fowl, with the exception of the Turkey; at least, to that continent must we look for their earliest domestication. The Goose and Duck, however, appear to be indigenous to no particular quarter of the globe. But the genus *Gallus* is undoubtedly Asiatic, and it is to this day found in India and Java in a wild state, and affords as much sport to the huntsman as does the pheasant in England or the prairie fowl in this country. Undoubtedly all our varieties come from the *Gallus Bankiva*. Although the colours and markings of the wild fowl are nearly uniform, there is sufficient variety to account for the many changes of which, under domestication, the species is capable. —(*American Poultry World*.)

A GOOD hint to fowl-raisers, says our contemporary above quoted, is afforded in the fact that all wild birds feed their young upon animal (insect) food, even if berries, buds, seeds, &c., form the natural diet of the parents or adults of the same species. Thus young chickens will not thrive so well without it as they will if supplied with animal food in some shape. Earthworms are capital for very young chicks. Cooked meat chopped up fine with boiled rice and potatoes is a very nourishing and acceptable dish for them when young. But not too much of this—nor must it be given too often, otherwise they scour from the excess of the meat feed. A little two or three times a day will help them until they get to be six weeks old. By that time they will be strong enough to run in the fields and grass, where they will gather a more natural supply of this kind of food, and generally plenty of it.

THE French Government, realising that national and individual prosperity are dependant upon the development of agriculture, have introduced a bill in the Senate

making it obligatory to teach the elements of agriculture and horticulture in the thirty thousand primary schools of the nation.

— A LUTON correspondent, writing in reply to Mr. Pettigrew, states that bees in his district have fared very ill during the past winter. In September, 1877, he made up his stock to 105 hives, all fed-up bees, and now out of the 105 he has ninety-one hives doing well.

— We learn from an American source that a good and cheap varnish for general use, and one which dries in a very short time, may be made of the best wood naptha one pint, gum shellac 2 ozs., gum sandarac 2 ozs. Pound the ingredients in a mortar, and pour on the naptha, shaking it up often. When dissolved filter through fine muslin, and the varnish will then be fit to use. If too thick add more naptha.

— IN Thuringa, Germany, says the *Prairie Farmer*, over 1000 tons of dried beetroot leaves are annually passed off as genuine tobacco. These same leaves, as well as those of chicory and cabbage, are largely used for a similar purpose in Magdeburg and in the Palatinate. The "Vevey" cigars, so much favoured in South Germany, are composed of cabbage and beet leaves, deprived of their natural smell and taste, and subsequently steeped in tobacco water for a lengthened period.

— THE total number of animals imported into Great Britain from all countries in 1877 were as follows:—From European countries we received 179,236 cattle, 848,815 sheep, 18,745 swine. From the United States and Canada 19,187 cattle, 28,395 sheep, 810 swine. From the Channel Islands we received 2,688 cattle, and 2 swine; and from other countries 5 cattle, 449 sheep, and 17 swine. From Ireland 649,441 cattle, 680,774 sheep, 585,427 swine. Making a total of 2,958,441 animals, against 3,226,948 in the previous year.

— THE first mention of butter is that of Herodotus, where, in describing the Scythians, he says, "These people pour the milk of their mares into wooden vessels, cause it to be violently stirred or shaken by their blind slaves, and separate the part that arises to the surface, as they consider it more valuable than that which is collected below it." Soon after the death of Hippocrates we read that the Greeks thought the butter which the Thracians ate a wonderful kind of food. The ancient Ethiopians appear to have used butter as food, while the ancient Germans were also butter-makers.

— WHERE a system of feeding cows for milk prevails that is altogether artificial and unnatural the product can neither be healthy nor satisfactory in quality or condition. Where brewers' grains or distillery wash forms a chief part of the cow's food the animals are unnaturally stimulated, and under such a stimulus large quantities of milk of inferior quality are secreted, the cow quickly becoming worn-out and diseased in consequence.

— "THE greatest mistake," says Mr. Falconer King in his report of the analytical work of the year, "which I have ever seen committed in connection with the employment of lime is that of mixing it with manure before application. In these days of enlightenment it is almost incredible that such an egregious error as this should be committed. When farmyard manure, at least after it has been kept for some time, is so treated with lime it is almost entirely destroyed, and the value of many other manures by similar treatment would be very much lessened. Lime should never be allowed to come in contact with the manure at all, and if it could be arranged conveniently these two substances should be applied to the land at different times."

— IN these days of "big things," says an American writer, our small breeds of poultry seem to be falling into disrepute. Golden-spangled Sebrights give larger eggs in proportion to their size than any other breed with which I have become acquainted. Moreover, under the present mode of buying and selling by counting the price received for these eggs is the same as that for any others. The birds can be allowed the range of the garden and lawn, where they are very useful insect-destroyers, doing but little damage as compared with a 12-lb. Brahma, which scatters a hill of potatoes with one or two strokes of its great clumsy foot, or devours a large head of cabbage at one meal. Some other breeds are preferable for table, but for clear profit in eggs Spangled Sebright Bantams are surpassed by none.

HONEY-PRODUCING DISTRICT.

"WILL you ask your correspondent, Mr. Pettigrew, to tell us what parish he considers the best in the United Kingdom for honey-producing (for a large number of stocks), everything considered?"—A KILKENNY BEE-KEEPER.

This question is one that naturally arises in the minds of those who contemplate bee-keeping for profit on a large scale; but no one can tell which is the best parish or neighbourhood in Great Britain and Ireland for honey. In considerations of this kind there is no place for the superlative degree, for we can never get beyond "good" and "better" localities for honey and bees. The last words of our correspondent's question, "everything

considered," cover a great deal—viz., pasture, climate, and a market for the produce. Many places in Ireland, so far as pasture and climate are concerned, cannot be well surpassed for bees, but there the markets are not favourable, and the price of honey is low. For thirty years I have admired the honey that came from the neighbourhood or county of Dublin for sale. In some seasons when we have had bad harvests of honey in England large quantities of excellent honey and comb came from Ireland. Swarm hives containing 7, 8, and 9 stones of honeycomb each have arrived in Liverpool with their combs unbroken and in good condition. The climate of the south of both England and Ireland being warmer than the north must be better for bees, all other things being equal. The pasture, climate, and the records we have seen of successful bee-keeping in the south of England have made us form a high opinion of Devonshire and its neighbour counties. The grand supers of Mr. Fox, filled at Kingsbridge in Devonshire, are evidence enough of what bees can do in Devonshire under good management; and Mr. Fox informed me some years ago that he does not remove his bees to the moors.

The results of bee-keeping in many places of Scotland have been very satisfactory, and prove that under good management bee-keeping even in the north is profitable. Glasgow is in our opinion the best market in the world for honey. England is a better fruit country than either Ireland or Scotland, and is the refore, generally speaking, better for bees during the spring months. England, too, has more sycamore and lime trees, and grows more field beans than Scotland, and these yield honey in abundance. But probably the grass fields of Ireland and Scotland are better sprinkled with white clover than those of England, and it is well known that white clover is the queen of honey flowers in this country. Heather, which abounds in Ireland and Scotland and many parts of England, comes into flower late in the season (August), and yields large harvests of honey of a strong and peculiar flavour; but heather is more useful to the bee-keepers of the north than to those of the south, for in the north the summers are shorter, and in autumn the second crop of white clover does not yield honey as it does in the warmer climate of the south. The south, in our opinion, is better for honey than the north, "everything considered."

I do not know what our correspondent means by "a large number of stocks," for this may mean twenty, fifty, or five hundred hives; but I will here say that thirty strong hives are enough to stand in one garden, even in a good locality. When stocks are multiplied beyond thirty it is better to spread them abroad one or two miles apart, say twenty hives in one place and twenty in another, thus giving the bees a wider pasturage.

A strong hive in the midst of the season for honey contains about fifty thousand bees, and twenty of such large communities will pay many visits every day to the honey-producing flowers around them, and carry a large amount of honey.—A. PETTIGREW.

BEEES FOR PROFIT.

I WISH to write a word of encouragement to the despairing bee-keeper. I read with much interest Mr. A. Pettigrew's remarks on page 312, and I will give him a little of the information he seeks, the result of my personal experience of last year's bee-farming. I am an old apiarian, and am not easily discouraged by climatic changes or the consequences resulting therefrom; if I were, my experience of the last two years would damp my ardour somewhat.

Some twenty years ago I set myself to work out the problem whether bees under careful management could be made to pay. Hobbies as a rule are rather expensive luxuries and rarely if ever pay; but I was certain that bees are an exception to this rule, and that a cottager with a little enterprise and who had sense enough to avail himself of the practical suggestions of others might easily gain his rent by his bees. If my memory serves me faithfully I spent that year £20 in the purchase of stocks and appurtenances, including hives, supers, and wood for houses. It was a needlessly large outlay for the experiment, but stocks were dear that year; still when the season closed I found I had recouped myself my expenses great as they had been, and had an apiary which was the admiration of all the old bee-keepers hereabouts. They flocked in from the surrounding neighbourhood for explanation and advice. I told them that I never killed a bee, I had never sulphured a hive in my life, nor have I up to this day. I told them further that I fed them when they were hungry whether in summer or winter; that I gave them clean, sweet, and dry hives to live in, and frequently changed their boards, scraping them with a bit of glass to make surety sure; that I protected them from the weather, fed them from the top of the hive, and wrapped them well round in the early spring with haybands or sacking to keep the brood warm, and gave them plenty of water in breeding time. The question again and again arose, "What do you do with your bees if you do not kill them in the autumn?" Do with them! Why, I join two or three hives together, and that with very little trouble. "Then they want feeding?" Well, feed them. Sugar is 4d. a pound, and honey is worth a shilling. Where is the loss?

I have found after many years' experience that the old estimate of honey seasons is fairly trustworthy—that out of seven consecutive years three are good, three are but indifferent, and one is decidedly bad. The last season was by far the worst in my recollection, but yet I have gathered from it a very useful practical lesson. If any of our old-fashioned friends who deem it absurd to feed bees happen to glance over these lines I hope they will not miss the lesson. At the close of last April I had twelve stocks of good average weight, and certainly very promising. Well, I secured but one swarm from these twelve good stocks; one I am told escaped and was lost. Early in June, as the rest evinced no disposition to swarm and were hanging about the hives wasting time, I supered the whole, hoping that I should get some honey though I had failed in swarms. To my astonishment in the autumn I found that only two supers were properly filled and thoroughly good, and that two others were filled but were not marketable. The other nine supers were empty. When I removed the supers and weighed the hives I found that there was scarcely one that could reasonably be expected to stand the winter. Many had little or no food at all; so I began feeding, hoping that frosty weather would not ruin my prospects, for I dread dysentery after frosts more than a deficiency in stores. Thanks to the mild winter I have brought eleven stocks out of the thirteen through their troubles. Of course I have been able to feed most of them all through the winter, and I have fed them. To have stinted them would have been wretched policy, for no living creatures so well repay for their keep as bees. My only regret is that I did not look more attentively to the two hives I have lost, for I am persuaded I might have saved them also. The food I give them answers very well in seasons of great scarcity when quantity is the *sine quâ non*. To each pound of loaf sugar allow half a pint of water and boil them for about three minutes. If you boil any quantity, say 5 lbs. of sugar, add after boiling a wineglass of rum, and a tablespoonful or two of strained honey if you happen to have any by you: this mixes well together and the bees like it. I always feed from the top of the hive except I am giving barley-sugar: this I give from below. I commonly use those small preserve jars or marmalade pots, the top of which I cover over with a little old muslin which is useful for no other purpose. In this way I have managed to give my bees nearly a hundredweight of food since last October.—C. LILLEY.

BEEES AT THE PRESENT TIME.

MR. PETTIGREW, on page 312, having asked bee-keepers to give their experience with bees during the last few months, I beg to remark that out of forty stocks I have lost one only, but came near losing three of my strongest in February, owing to their having bred so freely during the mild weather we had. Fortunately I happened to look at one and found half the bees dead, they having consumed all the food on one side of the hive, but the queen was alive, and sufficient bees left to continue breeding after clearing out the dead ones; so after finding out the state of this one I overhauled the entire lot, and found two others in the same plight, and one of those a stock with an imported Ligurian queen. She had been introduced to a stock of hybrids in the autumn, and had bred so much that they had eaten all the food on one side of their hive, and among the dead bees was the queen; so I joined the remaining bees to a stock close by, and they are very strong at the present time, as likewise are most of the forty stocks.

I may just remark that all my bees are Ligurians and hybrids. I keep them in bar-frame hives, and I usually in the autumn take old queens away and give the stocks young queens, and I invariably find that young queens continue to breed later in autumn than old ones.

On the 25th of April a gentleman from Kenilworth called to see me, and I asked him how his bees had wintered and stood the cold winds of this spring. He says he has ten stocks all very strong, and has not lost any; in fact, they are quite full, particularly a Woodbury bar-frame hive, into which he put a swarm last year. He has one other bar-frame hive, and the rest are straw skeps, and as he wants to prevent swarming as much as possible he likes the frame hives best, because he can open the top of the hive and attend on supers, but the straw skeps with the central hole he is afraid they will bother him by swarming. It appears to me, as far as I can learn, that bees have wintered well round here (Mid-Warwickshire), and that the outlook for the present year is encouraging.—A. W. B.

As regards our neighbourhood, which is a few miles from Leamington, I have scarcely heard of a stock dying this spring, and a few miles from here I looked at some more than a month ago, and they were cram full of bees, and had plenty of honey left to carry them through.—A. WARWICKSHIRE BEE-KEEPER.

OUR LETTER BOX.

PROFITABLE FOWLS (S. X.).—Without knowing your requirements more definitely it is not easy to answer your question very precisely. For general

use both for table and laying we recommend Dorkings, where soil and situation are fairly warm. Dorkings crossed with Game produce stronger chickens than the pure breed, and excellent for table. As layers of large eggs we recommend Brahmas; they may also be crossed advantageously with Dorkings, the produce being excellent as layers and mothers. When eggs alone are required we should, of course, recommend some of the varieties which do not sit. None can be better than Black Minorcas, or Leghorns either Brown or White.

EGGS (R. B.).—If there is a fecundated germ in them a male bird must have been with the hens.

TRANSFERRING BEES (W. H. A.).—You cannot transfer your bees into bar-frame hives at a better time than when flowers are plentiful, say during the early swarming period about the end of May or early in June.

GREEN PARAKEET'S EYELID ULCERATED (Twenty-years Subscriber).—Bathe the sore with lukewarm water once a day for a week, so as to thoroughly cleanse it of the purulent matter. Afterwards, with a small camel-hair brush, carefully anoint around the part affected with an ointment made up from about five grains of lunar caustic to half an ounce of fresh lard. Apart from the ulcer the bird may appear in good health, still there may be a defect in the bird's system, therefore the outward application can be assisted by carefully administering to the patient a couple of drops of castor oil. When castor oil is given to a bird the services of a second person may be called in for the purpose of placing betwixt the base of the mandibles a thin skewer or bodkin whilst the oil is dropped in the back part of the mouth, care being exercised that no oil be spilled upon the feathers. If your Parakeet will partake of a br ad-and-milk diet add to it a teaspoonful of a decoction of dandelion.

DORMOUSE (Lilian).—Your feeding it with nuts and fruits is correct. We do not know how long it usually lives.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain.
1878.	Baromet. ter at 35- and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
April.		Dry.	Wet.			Max.	Min.	In sun.	On grass		
We. 24	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Th. 25	29.571	52.7	51.7	N.E.	50.0	62.3	49.2	95.2	45.4	0.030	
Fri. 26	29.778	52.6	49.0	N.E.	49.6	64.8	45.2	117.0	40.7	—	
Sat. 27	30.035	48.9	44.7	N.	49.8	62.0	41.4	109.2	38.0	—	
Sun. 28	30.190	53.0	48.3	N.	50.0	64.5	39.4	113.5	33.8	—	
Tu. 29	30.305	51.8	48.1	E.	50.6	63.6	40.4	105.6	38.2	—	
We. 30	29.950	56.6	51.6	E.S.E.	51.0	67.0	44.0	116.9	37.4	0.270	
Th. 30	29.648	58.8	55.2	W.S.W.	51.7	69.4	40.3	109.4	40.0	—	
Means	29.911	53.1	49.8		50.4	64.8	43.8	109.7	40.5	1.340	

REMARKS.

24th.—Fair morning, but dull afternoon, clouds cleared at sunset; fine evening.
25th.—Fine sunny day, but cold wind; starlight night.
26th.—Very bright sunny day; fine night.
27th.—Another bright sunny day, rather overcast and dull between 4 and 6 P.M.; very fine evening.
28th.—Calm and pleasant morning; fine day, slightly overcast at intervals; very fine evening.
29th.—Fair day and much warmer, but cloudy damp evening.
30th.—Warm morning, but rather dull afternoon; bright evening, fair.
Barometer rather higher than last week, temperature about 2° higher. Week on the whole fine and dry, but cold winds rather prevalent.—G. J. SYMONS.

COVENT GARDEN MARKET.—MAY 1.

TRADE is still very quiet with a good supply of early fruit, such as Grapes, Strawberries, Peaches, Figs, Cherries, and Melons. Asparagus from the open is now showing itself, and the first Gooseberries have arrived this week. Prices are generally lower.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½	sieve	2	6 to 6	Melons.....	each	10	0	15 0
Apricots.....	dozen	0	0	0	Nectarines....	dozen	0	0	0
Cherries.....	½	lb.	0	0	Oranges.....	½	100	3	10 0
Chestnuts.....	bushel	10	0	0	Peaches.....	dozen	30	0	40 0
Currants.....	½	sieve	0	0	Pears, Kitchen..	dozen	1	0	8 0
Figs.....	dozen	12	0	20 0	dessert.....	dozen	3	0	12 0
Filberts.....	½	lb.	0	9 1	Pine Apples....	½	lb.	1	6 5 0
Cobs.....	½	lb.	0	1	Plums.....	½	sieve	0	0 0
Gooseberries..	quart	3	0	6 0	Raspberries....	½	lb.	0	0 0
Grapes, hothouse	½	lb.	6	16 0	Strawberries..	½	lb.	4	0 16 0
Lemons.....	½	100	6	0 10	Walnuts.....	bushel	5	0	8 0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	dozen	2	0 to 4	Mushrooms....	pottle	1	6 to 2	0	0
Beans, Kidney forced	½	100	1	0 2 0	Mustard & Cress	punnet	0	2	0 4
Beet, Red.....	dozen	1	6	3 0	Onions.....	bushel	2	6	8 0
Broccoli.....	bundle	0	6	6	pickling.....	quart	0	4	0 0
Brussels Sprouts	½	sieve	2	6 0	Parsley.....	doz. bunches	2	0	0 0
Cabbage.....	dozen	1	0	2 0	Parsnips.....	dozen	0	0	0 0
Carrots, new....	bunch	1	6	3 0	Potatoes, frame	½	lb.	0	6 1 3
Capiscums.....	½	100	1	6 2 0	Potatoes.....	bushel	3	6	7 0
Cauliflowers....	dozen	3	0	6 0	Kidney.....	bushel	5	0	7 0
Celery.....	bundle	1	6	2 0	Radishes.....	doz. bunches	1	0	1 0
Coleworts.....	doz. bunches	2	0	4 0	Rhubarb.....	bundle	0	6	1 3
Cucumbers.....	each	0	6	1 0	Salsify.....	bundle	0	0	0 0
Endive.....	dozen	1	0	2 0	Scorzoneria....	bundle	1	0	0 0
Fennel.....	bunch	0	8	0 0	Seakale.....	basket	1	6	3 6
Garlic.....	½	lb.	0	6 0	Shallots.....	½	lb.	0	3 0 0
Herbs.....	bunch	0	2	0 0	Spinach.....	bushel	2	6	4 6
Lettuce.....	dozen	1	0	2 0	Turnips, new..	bunch	1	6	3 0
Leeks.....	bunch	0	2	0 4	Veg. Marrows..	each	0	0	0 0

WEEKLY CALENDAR.

Day of Month	Day of Week	MAY 9—15, 1878.	Average Temperature near London.			Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h. m.	h. m.	h. m.	h. m.	Days.	m. a.	
9	TH	Royal Society at 8.30 P.M.	61.8	39.5	50.1	4 19	7 33	10 18	1 14	1	3 48	129
10	F	Royal Institution at 8 P.M.	62.0	39.8	50.4	4 18	7 35	11 44	1 33	8	3 46	130
11	S	Royal Botanic Society at 3.45 P.M.	62.4	40.7	51.0	4 16	7 36	1 a 9	1 50	9	3 48	131
12	SUN	3 SUNDAY AFTER EASTER.	63.0	41.3	52.1	4 15	7 38	2 35	2 5	10	3 50	132
13	M	Royal Geographical Society at 8.30 P.M.	63.6	39.0	51.3	4 11	7 39	4 3	2 19	11	3 51	133
14	TU	Royal Medical and Chirurgical Society at 8.30 P.M.	63.3	40.9	52.1	4 10	7 40	5 31	2 35	12	3 51	134
15	W	Society of Arts at 8 P.M.	64.8	41.1	52.9	4 9	7 42	7 2	2 53	13	3 51	135

From observations taken near London during forty-three years, the average day temperature of the week is 63.0°; and its night temperature 40.8°.

CUTTING ASPARAGUS.

CUSTOM exists in many districts of systematically chopping off the small young shoots of Asparagus whether they are wanted for use or not. This practice is continued until the end of June, or at least quite until the close of the Asparagus-cutting season. The system is not only practised in many gardens, but is occasionally recommended by writers in the horticultural press. I do not wish to assume a dogmatic tone and say that in all cases the practice alluded to is wrong, but I wish to express my belief that it is, as a rule, much more pernicious than beneficial. If any cultivator entertains a contrary opinion it is important that the reasons for holding it be published. I have seen the practice alluded to advocated, but have never yet seen a reason advanced for such advocacy.

In order to be consistent I will submit the reasons that have induced me to abandon a practice which I have seen followed by generally good gardeners, and which I was obliged to adopt when in a subordinate position in half a dozen different gardens. My first reason for not cutting the spray or sprue is a physiological one; my second practical.

First, If a plant of any kind is denuded of its foliage the health of the plant is impaired: it is indeed only by promoting a free and healthy growth of foliage (and I may incidentally remark that it can only be healthy when exposed to full light and air) that a satisfactory plant can be produced. The seed of a plant formed above ground and the crown or growing part of a plant that is formed in the soil are alike storehouses of food; the one to supply a future plant, the other to prolong the life and increase the growth of the plant already existent. The source of the food is the soil and the air; vehicles for producing it and manufacturing it are roots and leaves. I will not copy from books and detail in a mock scientific manner how the roots of plants absorb different ingredients from the soil, and how the leaves decompose them and render them nutritious by changing the crude juices into organic substances. It is sufficient to know that that is the fact.

The next point to take cognisance of is that the substances formed in and by the leaves are stored up in different parts of the plant, little or nothing of them remaining in the leaves. Thus in ligneous plants—trees—the stem, and in tuberous plants—as Potatoes—the tuber is the storehouse, and in caulescent plants—Asparagus—the crown is the food-preserver of the plant. Without leaves there can be no food stored up, any more than crude juices out of which it is produced could be provided without roots. The cutting-off the heads of young plants, therefore, is only a little less injurious than cutting off the roots. I am aware in the case of Asparagus that if the whole of the heads are cut off in a young state succeeding growths will issue, because there is a sufficient residue of vitality in the crown to promote a second growth; but that growth is weaker, not stronger, than the growth preceding, and is produced at the

cost of weakening the plant. Even Peas, if the shoots are cut off immediately they appear above ground and before the parent seed has decayed or become exhausted, will produce a second growth from the residue of stored food in the seed; but such forlorn-hope growth is necessarily weak and unprofitable. The above is what I term my physiological reason for not cutting the young shoots of Asparagus except they are required for special purposes—as I am sorry to say so many of them are—by the cook.

I will now submit some practical evidence that the custom alluded to is wrong. In nearly or quite all instructions on Asparagus culture we find it urged that the growths or heads should not be cut in a young state until the plants are three or four years old. Why is this? Obviously because cutting would weaken the plants; whereas by permitting the shoots to grow the plants attain strength. I am not aware that the correctness of that advice has been questioned. Assuming it to be sound, I want to know how it can be right to leave the small young shoots of new plants uncut, and at the same time wrong to cut the small young growths of older plants? I well know that in hundreds of gardens the habit is in one case to cut and to leave the shoots uncut in the other; but I fail to see that the practice is either rational or logical. I have for many years made it a practice of only cutting such small shoots that were required for cooking purposes, leaving all I could to grow unchecked to gather and prepare food for storing in the crowns for providing future and larger heads. If the practice had been wrong the beds must have deteriorated in value, whereas the contrary is the case. Although the beds are as old as I am, and I am approaching half a century, they are more profitable than ever. One important element in contributing to their prolonged productiveness, I am persuaded, is the practice of not cutting the small shoots.

As bearing on this subject, and which indeed suggested these notes, the following letter has been forwarded to me by the Editors with an intimation that they had replied to the question, but with characteristic editorial reticence did not communicate to me the nature of their reply. Here is the letter:—

"A gentleman having informed me that for some years he had very poor crops of Asparagus, though much care had been bestowed on it, until he adopted the plan of leaving on—i.e., not cutting the weak shoots in May, I take the liberty to ask your advice before allowing the weak thin shoots to go to leaf and seed, as it is so contrary to the usual mode—viz., continuing to cut till the middle of June."

The receipt of the above letter I interpret as an intimation that the question to which it refers is worthy of examination and discussion: hence I have given some reasons why I have adopted the practice of not cutting the "weak thin shoots of Asparagus in May."

I have yet one other reason for leaving the young shoots, and it appears to me a cogent one. Nine years ago I sowed a few short rows of Asparagus for the sole purpose of testing the question at issue. A portion of the bed has been systematically cut until the middle of June, another portion has had only the strong shoots cut, and a third portion has

not been cut at all. The result is that where severe cutting has been practised the bed is the weakest, and where it has not been cut at all the plants are the strongest. That experiment has satisfied me that the custom of cutting off all the young growths in May is not a sound one.

I may now glance for a moment on the other side of the question. The gentleman whose letter I have quoted I assume to be under the impression that leaving the shoots to produce and ripen seed must have a tendency to exhaust the plants. Philosophically speaking he is right, practically he is wrong; yet theory and practice do not clash here, for the sufficient reason that the small thin shoots do not produce seed. Even when the stems are strong not more than one in ten produces seed. If all the young small shoots produced seed then we might well hesitate before permitting them to grow, because much of the strength of the plant is appropriated by the fruit and seed vessels; but since the young growths alluded to seldom perfect seed, no injury on that score can arise by permitting them to grow.

As the subject of cutting *Asparagus* is one in which a vast number are interested, and as the time is opportune for discussing the pros and cons of that matter, I shall be glad if other cultivators will communicate their experience, and especially if they can advance sound reasons for adopting a practice contrary to that now advocated of permitting the small shoots to remain uncut.—A NORTHERN GARDENER.

FRUIT PROSPECTS.

DURING recent years, owing almost entirely to severe frosts occurring during the blossoming period, the dearth of English-grown fruit has been a source of great loss to the owners of gardens and orchards, and also to the consuming public generally, for importations of foreign fruit, valuable as they are, cannot compensate for the absence of home-grown produce. More than usual anxiety is therefore evinced as to the prospective character of the fruit harvest of 1878. We have from time to time received many letters from various districts relative to the great wealth of fruit blossom, and the majority of them are hopeful in tone. Some of these letters we now publish, as they reflect the opinions of competent men and close observers over a great extent of country—indeed of nearly all the districts of England, as well as Ireland, Scotland, and Wales.

ENGLAND.

It will be appropriate first to refer to the fruit prospects in the Royal Horticultural Society's garden at Chiswick.

The fruit trees, for which this garden is justly famed, have usually been more attractive by their general health and admirable training than remarkable for heavy crops of fruit. Blossom there has been in abundance, but it has frequently succumbed to the inclemency of the weather; this year, however, with the exception of Pears there is a reasonable prospect that a good supply of fruit will be produced. Chiswick is pre-eminently a garden of utility; there is little or nothing picturesque about it, but now the rich profusion of Apple blossom renders it decidedly beautiful. The long lines of horizontal cordons are wreathed with blossom, and the hundreds of handsome pyramids are masses of delicately-tinted flowers. The foliage also is expanding freely, and only frost of unwonted severity can prevent a golden harvest of this the most useful of hardy fruits. Particularly interesting and not less instructive is it to note the effects that different stocks exercise on the same variety of Apple. Stocks of the English and French Paradise, the Doucin, the Dutch Paradise, Scott's Paradise, Rivers' Broad-leaved, Nonsuch, Miniature, and Pigmy Paradise, and the Crab are grown so as to display their natural habits and character. On each kind of stock scions of the naturally late-bearing Blenheim Pippin were worked three years ago. The results are most marked. The trees on the Crab stock have grown strongly, but have not produced one blossom; a tree on the Dutch stock has produced just one truss; trees on the English Paradise have each half a dozen blossoms; those worked on the Doucin and the French Paradise, have grown less freely, but are densely covered with bold flowers, and the trees though small are remarkably healthy. Rivers' Pigmy and Broad-leaved Paradise also flowered freely. Scott's Paradise has produced neither free-growing nor full-blossoming trees. The French Paradise stock is the most precocious of all, and in consequence of the early-sap movement when frosts occurred most of the ungrafted stocks which were planted out as specimens have been killed;

but there is no instance of the stock being killed after having been grafted, and it is noteworthy that the natural precocity of the stock is not imparted to the scion. All the trees of the variety named blossom at their natural time and simultaneously on the whole of the stocks, a fact of some importance. These useful experiments have been conducted with great care, and all the stocks and grafted trees have been grown together and under precisely similar conditions.

Plums at Chiswick have blossomed profusely, and a fair set of fruit is observable on many trees. The soil grows the trees fully too vigorously, and in order to accommodate the requisite number of varieties free pruning has to be resorted to, and Plums not infrequently fail to set when the growth of the trees is luxuriant. Woolston Gage on the wall seldom fruits in this garden.

Cherries, like Plums, have blossomed profusely, and a good crop is anticipated. Particularly noticeable are the Morellos on the north wall. The trees are not closely secured to the wall according to the usual custom, but the sprays are permitted to grow from the wall in a semi-natural manner, only the larger growths being nailed-in. The result is prodigious crops of fine fruit, and, what is of special importance, it is clean. The crop this year promises to be very large.

Pears have blossomed moderately, and even if all the blossoms set there cannot be more than half a crop.

Peaches and Nectarines.—The south wall, on which is trained an extensive collection, presents quite an extraordinary appearance. The trees are diagonally trained cordons. The growths are not closely pinched and spurred, but are thinly trained to the wall on both sides of each main stem. The set of fruit is enormous. Quite nine-tenths will have to be removed from many of the trees. The foliage is as clean and healthy as the shoots are fruitful. The trees have only had the protection of a double thickness of herring nets. It is a splendid wall of fruit, and the crop at the present time cannot be surpassed by any in the kingdom. Mr. Barron pointed out a slight mistake that was made in planting the trees. The cordons were to have been 2 feet apart when trained to the wall, and to effect this when trained diagonally they should have been planted more than 2 feet apart. The trees referred to, although planted 2 feet apart, are not more than 1 foot 9 inches distant when brought from the vertical position and trained slantingly. This is a little fact worth mentioning, as it may not occur to all planters of trees that just in proportion as the cordons are depressed from the vertical line so will the space between cordon and cordon be diminished.

The crop of Peaches, Nectarines, and Apricots in the unheated orchard house is remarkably fine, and thousands of fruit will have to be removed.

Small fruits promise to be a moderately full but not a heavy crop.

If the present favourable weather continues Chiswick will be full of fruit this year, and the trees are unusually free from insects. This is probably attributable in a great measure to the severity of the weather at the close of March and beginning of April, which no doubt checked the increase of aphides considerably while it did not perceptibly injure the trees.

Contiguous to the gardens above referred to are some extensive fruit gardens and orchards. The Apple trees in the grounds of Mr. Mills and Mr. F. Dancer present a magnificent appearance. The grounds of the former cultivator are limited in comparison with those of the latter, but it is surprising to see the wonderful thrift and excellent cultivation of both small fruit and flowers beneath the fine fruit trees now densely wreathed with blossom. Mr. Dancer, a fruit cultivator of admitted celebrity, has a magnificent display of Apple blossom. The acres of Cox's Orange Pippin are worth a long journey to see. The trees are planted about 9 feet apart and are about 12 feet high. They have never been pruned nor pinched, but have had the branches thinned out when necessary, and the result is model trees of graceful contour and crowded with blossom from centre to circumference. It is not too much to say that by no system of pruning could so much fruit be produced in a given time as these handsome naturally grown bushes are capable of yielding. Small's Admirable is also extensively grown and has an excellent display of blossom—such, indeed, as could not have been produced had the trees been pruned, for this good Apple, like a few others, has the habit of bearing heavily at the extremities of the branches. All the varieties of Apples are richly draped with blossom, and genial weather continuing a great crop of fruit is anticipated.

Plums have shed their blossom. Thousands of trees are

grown, and on many of them good crops of fruit are setting. The most prolific varieties are perhaps Mitchelson's and Gisborne's. Rivers' Prolific, Victoria, and Prince of Wales also promise well. Belle de Septembre is also noteworthy by its Lombardy Poplar-like habit of growth; it is setting a good crop of fruit, and is a valuable late Plum. Later still is Sandall's Plum, the only variety that grows into a real timber tree; it is setting a good crop. The Plum blossom was more or less injured by the frost of late March and early April, and the crop consequently will be "patchy," some trees being heavily laden but others barren. A moderately good crop will probably result, but not a heavy one.

Cherries.—These are not grown largely except Morellos, and the bush trees of these are perfect pictures. They are 8 to 9 feet high and through, and are "white as a sheet" with blossom. They have a beautiful appearance now, and will be equally beautiful in the autumn when heavily laden, as they promise to be, with crimson fruit.

Pears.—Many of the trees produced scarcely any blossom; others had a moderate show, but the fruit is not setting well and the crop will be a scant one—almost a failure. Gooseberries and Currants promise to be a moderate crop in this district, and Strawberries are showing freely.

The following also refers to the London district:—

"Apricots bloomed freely enough, but the weather at the time was most unpropitious and killed nearly all the flowers; except in very warm and sheltered positions very few fruit have set.

"Peaches and Nectarines on walls are fairly set, and more than an average crop may be looked for.

"Pears, Plums, and Cherries, with very few exceptions, have an abundance of bloom, and are just now very effective indeed.

"Apples are not fully out, but are looking very promising. Kerry Pippin and Keswick Codlin are amongst the forwardest, while Cellini and Cox's Orange Pippin are only just showing for bloom.

"Strawberries are throwing up their flower spikes plentifully, but Gooseberries are generally scarce. If late frosts do not visit us again more than a fair average of fruit of all kinds except Apricots and Gooseberries is anticipated.—J. W. MOORMAN."

The following refers to an important fruit district still further south:—

"Looking at the fruit crop as a whole in Kent there appears every probability of a large one, but when we examine the different kinds we find that some fall short. Cherries have bloomed well, and with the exception of a few early sorts will yield a large crop if the weather is suitable. Plums, with the exception of the Diamonds, which in some of the low-lying districts have been cut by the frost, also promise a large crop. It is too soon, however, yet for us to rely upon a large yield, as the May frosts are usually fatal to Plums.

"Apples are not yet sufficiently forward in blossom to ascertain the probabilities of a crop, but from the appearance of the trees we may expect good results to follow. The Pear blossom is very uncertain; in some parts good, in others almost a failure. Damsons apparently will be very prolific.

"The Gooseberries have been struck by the frost in many districts, and "Yellows" and "Bobs" will be a very short crop. Black Currants are at present uncertain, but there will not be a large yield. The Cob Nut trees will not be very full of bloom, partly, I suspect, owing to the large crop of last year. Peaches are doing well, but Apricots are a failure. I shall be better able in a few weeks to give you results, as at present one night's frost would do an immensity of damage. The general appearance of ordinary farm crops is very good, and we may expect a good yield of corn and hay.—LEWIS A. KILLICK."

From a more westerly district (Sussex) we have the following:—"Sharp frosts and cold biting winds from the north-east were so prevalent at the end of March and the first fortnight of April that much mischief was done to some of the blossom. Peaches and Nectarines upon open walls suffered severely, many of the wood buds just bursting into leaf being destroyed with a heavy per-centage of blossom—too heavy to admit of more than a slight crop of fruit being matured this season. Apricots have suffered even more severely. There will be no fruit where the wind has not been quite shut out, but wherever Apricots, Peaches, and Nectarines have enjoyed the protection of unheated glazed screens the crop is abundant.

"Plums, Cherries, and many sorts of Pears are 'clouds of bloom'; a few of the earliest Pears have, however, lost some blossom by frost. Apples have suffered from the attacks of

tomtits and bullfinches, yet enough blossom is left to afford promise of a tolerably full crop. The Filbert and Nut crop is a failure; female blossom was plentiful enough for another heavy crop, but all has succumbed to the frost. Last year we had plenty of Nuts but very few Apples, Pears, and Plums. This year the Nuts will be missing, but most other hardy fruits promise us ample compensation.

"Bush fruits—Gooseberries, Currants, and Raspberries, have escaped harm from cold thus far, and will according to present appearances be abundant. Strawberries have borne the winter remarkably well. This remark may appear uncalled for after such a mild winter, but I have lost more plants in a mild wet winter than from any other cause, a large bed containing several hundred plants being totally destroyed in the winter of 1876-7.—EDWARD LUCKHURST."

From a district more westerly still we read:—"Peaches, Nectarines, and Apricots set very thickly, and the trees are looking well. Plums bloomed well—just over; appear setting very freely. Pear bloom good average and setting well. Cherries blooming well and still open. Apple blossom in orchards not yet open, but trees full of bloom buds. Currants blooming freely. Gooseberries well set—a fine crop, some of the most forward as large as robins' eggs. If we have fair weather I anticipate a good fruit year.—JOHN GARLAND, Killerton, Exeter."

From another important fruit-growing district (Herefordshire) we have received the subjoined letter:—"Our fruit prospects here up to the present are very satisfactory with the exception of Pears. Some few varieties have not much blossom upon them, others again have an abundance. Apricots, Peaches, and Nectarines have set well. We are just commencing to thin the Apricots; thousands will have to be taken off. Plums and Cherries have flowered most abundantly, and to all appearance will be a good crop. The Apple blossom is not yet open, but the prospect is good. Gooseberries and Currants look well and promise a good crop. Strawberries are just beginning to open their flowers. Our Apricots, Peaches, and Nectarines are protected with glass copings, with curtains to draw in front of the trees. We have them from three different makers, but Parham's I consider the best.—A. BYE, Hampton Court, Leominster."

From the west and south-west we turn to the east and north-east:—"Notwithstanding the severe frosts at the latter part of March the prospect of fruit is more encouraging than might have been anticipated. We had 13° of frost on the night of the 30th March, and 16° on the 31st.

"Apple blossom is everywhere abundant, and is very bold, and promising in appearance, the foliage being also profuse and very healthy. With favourable weather this most valuable of hardy fruits will be a heavy crop.

"Apricots had the blossom and embryo fruit more or less damaged by the frosts at the end of March; this applies equally to protected as to unprotected trees. The blossoms that escaped injury have set well, and the fruit is swelling fast. The foliage is very abundant—a characteristic of unripened wood. The crop may be an average one if the fruit pass the stoning satisfactorily.

"Cherries are very abundantly furnished with blossom, or rather buds advancing to the flowering state very rapidly, and are very healthy, promising a very full crop.

"Pears are very variable, old standard trees being abundantly furnished with blossom, whilst many of the choicer kinds against walls are sparingly furnished. Upon the whole the prospect of Pears is only moderate. Excepting to a few of the earliest blossom no injury has been done by frost.

"Plums are sheets of bloom, the blossom very strong and healthy. If frost keep away Plums will be an abundant crop.

"Peaches and Nectarines were not injured by the frosts of late March. The blossom, however, were only scant, but the fruit has set well, every blossom apparently having set. The growth is very free, foliage being abundantly produced and so far healthy.

"Gooseberries have not been damaged as was at one time feared; they are masses of fruitfulness. Some complain of damage by frost, the foliage and fruit having a yellow hue, yet the flowers are bold and perfect, and the prospect is generally good.

"Currants both Black and Red promise an abundant crop. Raspberries are very strong, the fruit likely to be fine if not abundant.

"Strawberries are throwing up the trusses very strongly and abundantly, and have an abundance also already of very healthy foliage.

"Upon the whole the prospect of fruit is very assuring, but it remains to be seen what will be the effect upon the crop of the badly ripened wood when stoning or seeding, presuming the blossom to escape injury from frost.—G. ABBEY."

Another correspondent writes from a more southerly point on the east coast:—"Apples promise to be a fair crop, neither the dull and wet summer of last year nor the spring frosts of this having done them any serious amount of injury. Pears will not be a good crop, owing in a great measure to the dull weather of last year, and not to the frost, although some sorts promise fairly, especially Beurré Diel, Beurré d'Amanlis, Bergamotte d'Esperen, and Winter Nelis. Notably barren are Citron des Carmes, Marie Louise, Easter Beurré, and Louise Bonne of Jersey. Plums promise to be a rather extraordinary crop, if amount of blossom stands for anything. Cherries too, I think, will be a fair crop. Peaches outdoors will be next to a failure, as far as can be judged at present, owing partly to the unsatisfactory way the wood ripened last year and the spring frosts, although the failure is more attributable to the former than the latter cause. Apricots will be a better crop than has been the case for the last two years, especially on old trees; on younger trees of rampant growth the wood was not ripened, and fruit is more scarce. Gooseberries will be a fair crop, but Currants will not be so plentiful.—EAST LINCOLN."

The prospects in the north are embodied in the accompanying report from the county of Durham:—"After a full examination of the fruit in this district I find Apricots, Peaches, and Nectarines setting thinly, but are not sufficiently far enough advanced to make sure of which is really set. The prospect is good."

"Apples are looking promising, the following trees being full of flower, and a sight worth seeing at the present time:—Ribston Pippin, Ecklinville, Oslin, Mannington's Pearmain, Scarlet Nonpareil, Large Cockpit, King Apple, Margil, Boston Russet, Claygate Pearmain, Lemon Pippin, Stirling Castle, Reinette du Canada, Ashmead's Kernel, Pearson's Plate, Gravenstein, Dutch Mignonne, Bar's Apple, Pitmaston Nonpareil, Jolly Beggar, Golden Pippin, Duke of Devonshire, Baron Ward, Duchess of Oldenburg, Rymer, Magnum Bonum, Cellini, Dumelow's Seedling, Keswick and Manks Codlins, Red Astrachan, Cockle Pippin, and Wellington."

"Pears thickly in flower are Beurré Easter, Jargonelle, Beurré Incomparable, Comte de Flandre, Hessel, Green Yair, Winter Nelis, Muirfowl's Egg, Beurré Diel, Williams' Bon Chrétien, Marie Louise, Beurré Clairgeau, Beurré de Capiaumont, Vicar of Winkfield, Doyenné du Comice, Soldat d'Esperen, Passe Colmar, Flemish Beauty, Beurré d'Anjou, Beurré Superfin, Comte de Lamy, Beurré Giffard, Matthews' Eliza, Louise Bonne of Jersey, Althorp Crassane, Beurré Magnifique, Prince Albert, and Beurré Langelier."

"Plums and Cherries are covered with bloom, but the fruit is not set. The trees and blossom are full of health, and good results are expected."

"The Gooseberry trees have suffered considerably, and assume a sickly appearance from the early frosts, yet if the late kinds hold good a fair crop may be expected. Other bush fruits are similarly injured. Strawberries are healthy and full of bud, and every signs of a good crop. Cold east winds have prevailed for these last ten days, which are injurious to our fruit crops here, but the weather is gradually becoming milder.—J. HUNTER, *Lambton Castle*."

MIDLAND COUNTIES.—Regarding the prospects for fruit in the midland counties generally the information which we have received is correctly represented in the two subjoined communications.

"Taking a glance over a wide extent of country I arrive at the following estimate:—

"Apples.—The show of blossom, on orchard trees especially, is one of the finest of recent years. The trees are densely covered with bold blossoms, which have expanded and are expanding with great freedom. I never remember seeing the flowers so abundant and yet so fine. No injury as yet has been done to this crop by the frost, and should the genial weather we are now enjoying continue throughout the present month a heavy crop of fruit must result. We often, however, have severe frosts towards the end of the month; indeed I once remember the whole crop was destroyed by frost in June. Pruned trees in gardens, especially those that made luxuriant growth, are not generally so full of blossom, as the wood on such trees was not well matured."

"Pears are very variable. A few trees have blossomed freely,

but still more are barren. The majority, however, have produced about half a crop of blossom and may mature about a quarter of a crop of fruit. Some of the blossoms have been injured by frost; the petals are fresh enough and the flowers fine and apparently healthy, but the petals are the hardest part of the flower, the tenderest being the ovary. Even when the pistil and stamens are uninjured the centre of the ovary, the germ of life, is often blackened, and the fruit is thus really dead and buried in its flowery tomb. Trees that have grown the most vigorously are the most destitute of blossom. We want more naturally grown trees: the crops produced by these are the most certain and weighty."

"Plums.—Unpruned trees have blossomed with great freedom, pruned trees less freely. Many of the blossoms have been destroyed, but, fine weather continuing, a good crop is expected. Victoria is the most productive variety; indeed in the counties of Derby, Notts, Lincoln, and Leicester the aggregate weight of the crop of Victorias will probably equal all the other varieties put together. The trees generally are very free from the aphid."

"Cherries.—This fruit is not grown nearly so largely in this district as Plums, but most of the Cherry trees are sheets of bloom, and, weather permitting, will produce good crops of fruit."

"Peaches, Nectarines, and Apricots.—The blossom on these was not generally profuse. In some gardens the crops have been much injured, while in others they have escaped injury. Probably a moderate crop will be produced in 'the midlands' of those proverbially (without efficient protection) uncertain fruits."

"Small fruits, such as Gooseberries, Currants, Raspberries, and Strawberries, promise to be plentiful."

"In prognosticating a good fruit year in the central district of England I do so on the assumption that we have seen the last of this year's spring frosts, a circumstance that, I regret to say, is by no means certain.—A MIDLAND COUNTIES FRUIT-GROWER."

"Apricots are not much grown in this locality; what few there are had a good show of bloom, but the frosts prevailing at the time killed nearly all. Some trees very much sheltered have a little fruit on."

"Apples.—These are not in bloom yet, but there is a very good show of blossom only waiting for favourable weather to open."

"Pears.—Of these some cordons have set a partial crop. Only a few trees on the walls are blooming well. I may add that we cannot grow winter Pears with any flavour here on our stiff cold clay, and are going to discard them, simply growing Marie Louise, Louise Bonne of Jersey, and Williams' Bon Chrétien."

"Plums.—Of these there is a splendid set of all kinds on the walls. The standards are quite denuded of buds by the bullfinches."

"Peaches.—All are protected by glass, and have good crops. It is no use trying to grow them without glass protection here."

"Cherries.—The Morellos are showing well, but the blossoms are not open yet. The sweet kinds are covered in bloom, and there is every promise of a good crop."

"Currants and Gooseberries.—A fair average crop of both."

"Take it altogether, I believe now with favourable weather we shall have quite an average crop of fruit. The blossoming being late and the weather so dry, the late frosts effected but little injury except to the Apricots.—W. BENNETT, *Rangemore Gardens*."

IRELAND.

"During my experience I have not witnessed a better prospect of fruit in general than the present season exhibits in the south of Ireland; and, if the frosts which are so prevalent about the beginning of May are not unusually severe, I am confident that we may look forward hopefully for an abundant crop of all sorts of fruit in autumn."

"Apples.—Notwithstanding the mild and genial winter and spring I find the Apple unusually slow in putting forth its buds and blossoms; but this, in my opinion, augurs well for the ensuing crop, as the foliage is coming boldly forward with the blossom, and will naturally prove of much value in affording protection to the bloom and infant fruit from any adverse breezes or nipping frosts to which they may yet be subject."

"Pears.—The Pear also has a much better prospect than usual, although such as bloomed early had some sharp easterly breezes to contend against; still I find that the present prospect is exceedingly good, the trees having an abundance of fruit

set and uninjured. At present we have a goodly number of trees in full blossom promising well, and if the present favourable weather continues for about ten days longer we may anticipate a heavy crop in autumn.

"Cherries.—On the Cherry I have never seen such an abundance of bloom, which up to the present has not received the slightest check. If the weather continue to favour us as the past has done our crop of Cherries will be very heavy.

"Plums also have a most flourishing and healthy appearance, but those of early bloom suffered more or less severely, which will prove injurious to the crop; but we hope that those in bloom at present will (from their present appearance) fully compensate for any loss sustained by the earlier-blooming varieties.

"Peaches have set a very fair crop, especially Royal George, which I consider is the best Peach to grow out of doors. Barrington and Noblesse have suffered a little from sharp easterly breezes, which produced blister of foliage, but notwithstanding there is a considerable share of fruit set, which I hope will come to perfection.

"Bush fruits promise abundantly. In the Gooseberry department the bushes are literally loaded, and the fruit has attained the size of a robin's egg, therefore we consider them out of all danger, and especially as an abundance of foliage will afford them any shelter they may now require.

"Currants promise well; they are not quite out of danger yet, but being hardy we look on this crop as certain.

"Raspberries.—From the appearance which the Raspberry wears at present we have reason to hope for an abundant crop, as the bushes are literally covered with unexpanded blossom buds.

"Strawberries appear to be rather backward; they are fully ten days behind what they should be, or rather behind what I have heretofore seen at this period of the year; but their fruiting crowns are unusually strong and plentiful, and though seeming a little backward as to time in other respects promise well.

"I am fully convinced from what I have heard and seen of the prospects of the fruit crop generally in the south and west of Ireland that it is most pleasing and satisfactory.—ANDREW CAMPBELL, *Muckross Gardens*."

We have also received the following from the "Sister Isle":—"The fruit prospects in this district are very promising. Plums and Apricots are all set and swelling, Cherries have a good appearance, Pears all showing well, and the blossoms are strong. Apples have a good appearance, but not in bloom. Small fruit I think will be a good average. Strawberries are throwing up fine strong crowns and looking well. If we get safe through May without frost I believe in this district we shall have an abundant supply of fruit.—JAMES TAYLOR, *Mountstewart, Newtownards*."

"My field of observation is chiefly that under my control. Apples, prospect under the average; very backward. Apricots and Cherries, I cannot find a fruit on the trees. Pears, a fine display of bloom. Should weather keep favourable we anticipate a heavy crop. Plums generally and Damsons have made a tolerable display of bloom, with prospect of an average crop. Peaches and Nectarines few or none, owing to severe frost while in bloom. Bush fruits, Currants, and Gooseberries promise a fair crop. Snails a wonderful crop; they clear nearly all my kitchen-garden produce.—E. KNOWLDEN, *The Gardens, Carton, Maynooth*."

SCOTLAND.

We have been favoured with the following interesting communication from one of the best of Scottish gardeners:—

"We are now enjoying beautiful spring weather, and crops of all kinds are making rapid progress; but we, like all the rest of Great Britain, had a sharp taste of winter at the end of March and beginning of April. On the 29th of March we had 12° of frost, and on the 4th inst. 8 inches of snow made matters look serious for the chances of the fruit crop. The previous four or five weeks were rather mild, and fruit trees were rapidly pushing into flower when the frost set in. All flowers open and exposed to the frost were cut off, but Peaches covered with two or three ply of old herring nets escaped with little injury and promise now to bear a fair crop. Apricots, being in full flower, were rather badly injured and are a thin crop generally; in some gardens none. In dry, warm, airy gardens where protected a good many have pulled through. Few Pears were in flower, but I find that in all the blossom which was near opening the pistil and ovary are killed and

quite black, and the stamens are so much injured that few of them are opening. The flowers are opening perfectly and make a grand display, but of course none of them will set. The latter flowers are not injured by the frost, but they are of a flabby nature and many of them abortive. This I attribute to the gross growth the trees made last autumn and which ripened badly. Many sorts that hardly ever miss here are almost without a flower, notably the Hesse, a favourite market sort that scarcely ever misses.

"Apples look most promising, and have a profuse crop of blossoms upon them. Like everything else they are bursting rapidly into leaf: but it is curious and interesting to note that most of our best bearing sorts, that are hardly ever without a crop, are among the latest in starting into growth. Hawthorn-den, Cellini, Ecklinville, Stirling Castle, Nonesuch, Warner's King, Blenheim Orange, and King of the Pippins have scarcely started a bud when most other sorts are nearly in full leaf. The Codlin tribe, including Lord Suffield, are early starters, but prolific bearers when they get a chance.

"Plums have an abundance of fine healthy blossom now setting freely and promising a heavy crop. Cherries are looking equally well; indeed there has not been such an appearance in this district for a crop of Plums and Cherries for many years past.

"Gooseberries were in full flower and nearly in full leaf when the frost set in; still they have suffered very little injury and promise a good crop. Currants and Raspberries had their foliage nipped by the frost, but have now quite recovered and promise to bear a heavy crop. Strawberries are coming up strong and healthy, and are also likely to be a fine crop.

"On the whole the prospects of a good fruit crop are much more encouraging at the present time than we could have expected after such a wretchedly bad autumn and winter for maturing the wood and blossom, which would have been easily injured by frost previous to the fine and dry weather between the middle of February and the end of March. That dry period, no doubt, was the primary cause of the comparatively small amount of injury done by the late severe frost; and probably the severity of the weather at so recent a date accounts for the freedom from insect pests which the trees still enjoy. The comparatively mild winter and early spring was greatly in favour of all kinds of vegetables, which have been unusually plentiful and good this spring. Under the influence of the present genial weather kitchen-garden crops are growing very fast, and with a continuance of such weather they will be both early and good.

"I have been over a large extent of the country lately—from Carlisle in the south to Aberdeen in the north, and everywhere there is the same fine appearance: trees and bushes in fine health, and the flowers where open simply magnificent. The weather is as good as we can wish it, and good crops of fruit are anticipated."

WALES.

"I have been looking over our trees to ascertain how the fruit crops of 1878 are likely to stand, and upon the whole I think there is reason to be thankful so far. The Apricot trees were in full bloom by the end of February. At that time and during the first half of March the weather was extremely favourable, and the promise of Apricots was enormous, but the severest part of our winter came in the latter half of March and the first week in April; bold winds were more prevalent than frost, and nothing injures vegetation more than cutting east winds. On All-Fools'-day I had quite given up all hopes of having a single Apricot, but now that the fruit is formed and nearly as large as walnuts I see there is a fair sprinkling on most of the trees. Last year we hung nets in front of Apricots when they were in blossom and we had no fruit. This year we left them to Providence, and notwithstanding the severe weather the result is as stated above. When fruit blossoms can be thoroughly protected I think it is a decided advantage, when only partially it is worse than nothing.

"Since the second week in April the weather has been excellent, and Plums on walls and as standards, also Peaches have set well. Cherries are just going out of bloom. Every branch of every kind, especially the Morellos, has been a perfect sheet of white, and if only half the flowers swell into fruit the crop will ultimately be splendid. Many of the Pears are in bloom and a few are past, and all are looking well. Only a few of the earlier Apples are in full bloom. Midseason and late sorts are well covered with buds.

"Gooseberries are loaded with fruit. All kinds of Currants

will soon be in the same state. Raspberries are not forward enough yet to tell what the crop will be, but the shoots are pushing strongly. Strawberries promise well, Black Prince is in full flower. This is an excellent Strawberry for preserving, as it is a certain bearer and always produces an immense crop of highly coloured fruit. Altogether our fruit crops are in a very favourable state at present, and should the weather prove favourable throughout the result will be satisfactory.—J. MUIR."

HOUSE SEWAGE FOR MANURE.

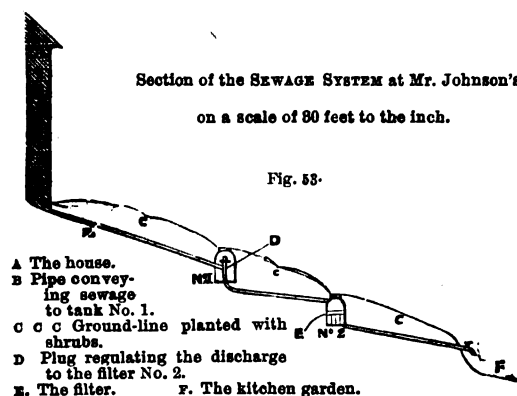
THE best reply we can make to our "Woolwich correspondent" is to reprint the following, which was communicated to us by the late Mr. C. W. Johnson:—

The Collection of the Sewage.—If the house is on a very steep declivity it may be collected in the following mode:—

"I have the advantage of a considerable fall between the house and the kitchen garden, yet that circumstance is not essential to the success of the plan; for even in the case of a perfect level it would only be necessary to add a common iron lifting pump to the second tank; or the object might be accomplished by even one tank only, if furnished with a division. My plan was to test the possibility of filtering the entire sewage of the house through a filter of sand sufficiently fine to remove almost all the mechanically suspended matters of the sewage, so as to render the filtered liquid available as a rich liquid manure, without being offensive to those who had the use of the garden. For this purpose I had two tanks constructed of bricks and mortar and lined with Parker's cement,

Section of the SEWAGE SYSTEM at Mr. Johnson's
on a scale of 80 feet to the inch.

Fig. 58.



of about 5 feet cube each. Into the first, marked No. 1 in the annexed plan, all the sewage of the house is discharged through an iron pipe of $1\frac{1}{2}$ -inch bore. This tank is furnished with an iron pipe of the same diameter which (regulated by a long-handled plug from the top of the tank marked D), discharges the sewage as it is needed from the tank No. 1 into the tank No. 2. This lower tank is also of a cube equal to about 5 feet in diameter. This is furnished with a filter, through which the liquid portion of the sewage finds its way; and is thence drawn off from the bottom of the tank by means of iron pipes of three-quarters of an inch bore to convenient places in the garden. The filter (E) is placed, resting on bricks, about 18 inches from the bottom of the tank. The bottom of the filter is formed of perforated tiles used by malsters for their kiln-floors; on this is laid a layer of gravel about 2 inches thick, on this about 2 inches of coarse sand, and on the top of the sand, to prevent disturbance by the rushing-in of the sewage from the upper tank, another layer of the malster's tiles. Thus constructed, the sewage finds its way through the filter with sufficient rapidity for the copious supply of the kitchen garden. As thus prepared the liquid manure passes through so as to possess but little smell and without leaving any obnoxious appearance on the surface of the ground. I need hardly say that the effect of this liquid is exceedingly powerful; and we have noticed it as remarkably so in the case of some newly planted beds of Asparagus and Rhubarb which have been irrigated with it; and, in fact, there is no doubt of its value for insuring the rapid growth of all kinds of newly planted culinary vegetables. I have so arranged the pipes in my kitchen garden that I can irrigate to any portion of it by merely turning a cock. This plan of filtering seems, in fact, to remove all the objections that can possibly be urged

against the use of the house sewage. And in the case of gardens, both for the amateur and the poor cottager, I feel convinced that, by such a mode as this, many of the difficulties of incessant cropping and little-varied exhausting rotations may be successfully met. The waste of fertilising matter in such sewage is, in fact, so much larger than is commonly supposed—a loss by the ordinary mode of constructing these tanks disguised in every possible way, that I feel assured it only needs the adoption of some such a mode as that which I have described, of rendering its use no longer distasteful to the occupants of the house, to insure its almost universal employment. The amount of sewage is much larger than is commonly understood; and in dry weather, when the demands of the gardener are larger, it is, we find, very easy to increase its bulk, in case of need, by pumping water into the tanks through the ordinary means."—(*Manures for the Many*.)

MARÉCHAL NIEL ROSE.

I CAN truly supplement Mr. Moorman's letter encouraging the growth of this grandest of Roses in conservatories. My Rose was budded on the common Briar and planted-out in the central bed of a cool greenhouse (20 feet long). Last year, its first year of blooming, it bore about thirty flowers. This year, having grown over a greater part of the roof, it produced 480 splendid blooms during March and April. On Easter eve seventy blooms were cut for the church decorations, and that without stripping the tree. My friends tell me that this tree, having bloomed so freely this year, will linger on but never again bloom satisfactorily. I gather from Mr. Moorman that this is not his experience, but perhaps he or some other rosarian can recommend a treatment which may avert such a calamity.

I succeeded in effectually keeping under that pest, green fly, by a liberal use of the syringe. Shortly before the buds were ready to expand the house was well fumigated on two successive nights. I found it far better to hang the tobacco pans from the cross rafters than to place them on the ground; by this means the strength of the tobacco was brought close to the foliage.—J. M. FULLER, Vicarage, Bealey.

ROYAL HORTICULTURAL SOCIETY.

MAY 7TH.

A REALLY splendid and very extensive exhibition was arranged in the conservatory: both sides of the central promenade of the large structure were occupied by admirable collections staged by the chief nurserymen and private gardeners who usually exhibit at these instructive and attractive meetings. The exhibition was in fact quite equal to some that we have seen when large prizes have been offered; indeed, it was in some points superior than where competitive collections have been staged. The plants at a miscellaneous gathering of this nature do not consist primarily of a few large formal specimens which have been trotted out again and again, but are composed of a great number of plants that are either new or rare, or which are specially valuable for decorative purposes. Besides extensive collections of plants there was a small but creditable supply of fruit, and a few good vegetables exhibited.

FRUIT COMMITTEE.—Henry Webb, Esq., Vice-President, in the chair. Mr. G. T. Miles, The Gardens, Wycombe Abbey, sent a dish of each of Elton and Black Tartarian Cherries of very fine quality, to which a cultural commendation was awarded. Mr. Parr, The Gardens, Harrow Weald Park, Stanmore, sent a dish of a large coarse-looking Strawberry, incorrectly named Alice Maud. Mr. Iggulden, gardener to R. B. Wingfield-Baker, Esq., Orsett Hall, Romford, sent a basket of fruit consisting of two bunches of Black Prince and two of Foster's Seedling Grapes and Victory of Bath Melon, to which a letter of thanks was awarded. Mr. R. Gilbert, The Gardens, Burghley, Stamford, sent three bunches of Foster's White Seedling Grape, a dish of each Hathaway's Excelsior and Carter's Green Gage Tomatoes, and Myatt's Prolific and Alpha Potatoes, also a dish of Mushrooms; a cultural commendation was awarded. Three new varieties of Broccoli were submitted for certificates. Mr. Gilbert of Burghley sent one called "The Chairman;" Mr. Ellam of The Gardens, Bodorgan, sent a dwarf white; and Mr. Howard, Priory Gardens, St. Osyth, sent "Model." Neither of them was considered an improvement upon varieties which are already in cultivation. Mr. Gilbert also sent a seedling Cucumber called "Montrose."

Mr. Killick of Langley, Maidstone, exhibited dishes of Dumelew's Seedling, Gooseberry Apple, Kingswood Crab, and Sturmer Pippin in a fine state of preservation. A letter of thanks was awarded. Mr. Gilbert exhibited a dish of Early Beatrice Peach perfectly ripe, to which a cultural commendation was awarded.

Mr. Osman, South Metropolitan District Schools, Sutton, Surrey, sent a dish of Late Rose Potatoes of crop 1877.

FLORAL COMMITTEE.—Dr. Denny in the chair. Messrs. James Veitch & Sons exhibited a very choice collection of new plants, amongst which the following were awarded first-class certificates—*Azalea Madame Charles Van Eckhaute*, semi-double, white, large flowers; a splendid variety. *Azalea Kaiser William*, rosy salmon, very double and free; a valuable variety. *Coleus George Bunyard*, a distinct and remarkable variety of the *Verschaffeltii* type, the centre of the leaf being deep rose veined with purplish magenta. *Rhipidopteris peltata gracillima*, an elegant garden hybrid; a chaste gem among dwarf Ferns. *Adiantum Lawsonianum*, a garden variety, almost as slender as *A. gracillimum*, but with the triangular-shaped pinnae more thinly arranged; and for *Primula acaulis sulphurea*. So many inferior and useless *Primroses* are from time to time exhibited that it is a treat to find something really valuable and useful as this is sure to be. The flowers are $1\frac{1}{2}$ inch in diameter, and the plant is of vigorous habit and flowers with great freedom. It will prove very acceptable for spring decoration. A botanical certificate was awarded to the same firm for the elegant *Dioscorea retusa*.

Mr. William Bull was awarded a first-class certificate for a remarkable plant, *Marica pacifica*, having a beautiful Iris-like flower. It has coriaceous foliage, arched, and the flower stem appears to grow up the interior of the leaf and produce its flowers an inch or two from the summit. The three-fall petals are pure ivory white, and the upper petals reddish brown striped with intense violet blue, with a central blotch of white; it is both curious and beautiful.

Mr. B. S. Williams had first-class certificates for *Coleus Kentish Fire*, leaves serrated and waved, colour bright maroon with purplish crimson veins, very bright; for the distinct and fine Fern *Anemidictyon phillidites tessellata*, and for *Adiantum Lawsonianum* above noticed; it is said to be a sport from *A. cuneatum*, and is very distinct. Mr. Williams also exhibited highly coloured examples of the two bright *Dracenas Frederickii* and *Renardae*.

First-class certificates were also awarded to Mr. Douglas for his fine Alpine *Auricula Silvia*; to Mr. Dean for *Aquilegia alpina cærulea*, a dark and massive flower; to Mr. Elwes for *Iris Leichtlinii* and *Camassia Brownii*; to Rev. H. N. Ellacombe for *Bomaria Caldasii*; and to Mr. James Atkins, Painswick, for *Saxifraga calycifolia*. A botanical certificate was also awarded to Mr. Atkins for *Androsace sarmentosa*.

We can only glance rapidly at the miscellaneous collections in the order in which they were arranged. On entering the building the first was an extensive and imposing group of *Azaleas* from Messrs. Wm. Bollislon & Sons, Tooting. They were low standard plants on stems ranging from 1 to 3 feet high with heads of the same diameter. The plants were excellently bloomed, admirably grown, and were composed of select varieties. Associated with them were Heaths and New Holland plants, the group being backed by a row of Palms and fringed with small plants of Ferns. It was altogether a superior collection.

Adjoining it was a striking group of *Roses* and *Azaleas* arranged by Messrs. Veitch. The *Roses* were in 8 and 10-inch pots, the plants being dwarf and very fine in foliage, each carrying from twelve to twenty remarkably fresh blooms. They included the best varieties, such as *Marie Van Houtte*, *Marquise de Castellane*, *Duchesse de Vallombrosa*, *Louisa Wood*, *Dupuy-Jamain*, *Victor Verdier*, *Madame Lacharme*, *Royal Standard*, &c. It is impossible to speak too highly of such plants as these for decorative purposes. The *Azaleas* also were highly effective, some of the plants being pyramids 4 to 5 feet high and through. The finest plant, and a fine variety, was *Extraneal*, a rich glowing pink. Amongst the smaller plants *Flambeau* was intensely rich; and *Roi des Belles*, one of the best of the double scarlet varieties, and *Marie Van Houtte*, a superior bright flower, were noticeable in this collection. The same firm also exhibited an imposing collection of cut blooms of *Rhododendrons* in fine trusses and splendid varieties; *Azalea mollis* in variety was extremely fine, and *Magnolias*. This collection, arranged at the extreme end of the building, had a commanding appearance and was much admired.

Mr. Wills exhibited a large group arranged in his usual pleasing style, Ferns, Orchids, Lilies, Palms, *Richardias*, &c., being associated in a natural and attractive manner. He also exhibited a collection of *Gloxinias* raised from seed at the Anerley Nursery by Mr. Bause. The plants were excellently grown, and the varieties were of great merit, the flowers being very large and stout and the colours rich and well defined. They produced a very imposing effect, and commanded much attention. One of them, *Beauty of Anerley*, a large crimson flower of great substance, was awarded a first-class certificate.

Messrs. H. Lane & Son, Great Berkhamstead, contributed an extensive collection of *Roses*. The plants were in small pots, and contained remarkably fine blooms. They had, as a front row, small and densely flowered plants of *Azalea mollis*, which were not only intrinsically good but imparted a good finish to the bank of *Roses*.

Messrs. William Paul & Son, Waltham Cross, Herts, exhibited an effective collection of *Roses* in pots, also half a dozen boxes of cut blooms. The blooms both on the plants and in the boxes were very fine.

We now reach the end of the conservatory and find a very attractive group of cut flowers from Mr. Peter Barr. They were composed of *Narcisuses*, *Scillas*, the brilliant *Anemone fulgens*, and other hardy flowers, and produced a most cheerful effect.

The first collection on the opposite side of the building was composed of a highly interesting assortment of bulbous plants exhibited by Mr. H. J. Elwes, Preston House, Cirencester. Tulips were represented in different species, also *Ornithogalums*, *Cypripediums*, *Leucojums*, *Orchis*, *Fritillarias*, *Cyclobotras*, *Watsonia fulgens*, *Polygonatum macrophyllum*, very fine, &c.; and near them Mr. Cannell exhibited a box of cut blooms of the lovely *Salmon Vesuvius Geranium*, also the pure *White Vesuvius*, as well as very fine *Mimuluses*.

The next group on the same side of the building was a large collection of *Azaleas* in 6 and 8-inch pots, arranged by Mr. O. Turner, Slough. The plants were admirably bloomed, and their effect was enhanced by the few elegant Palms that were interspersed amongst them, and the refreshing margin of *Isolepis gracilis*. A few of the more striking of the *Azaleas* were *Bon pour le Commerce*, scarlet semi-double; *Jean Vervaene*, rosy-salmon feathered, white, fine; *Grandis*, cerise, a remarkable flower; *Mons. Thibaut*, scarlet; *Dr. D. Moore*, rosy-pink, double; and *Apollo*, very fine white. Mr. Turner also exhibited a bold and striking single *Petunia Mount Beauty*, colour purplish mauve, and a white *Gloxinia*-like throat.

Messrs. Osborn & Sons, Fulham, staged a fresh collection, in which Palms predominated, interspersed with *Rhododendrons*, *Anthuriums*, &c.

In fine contrast with the above was a contribution of twelve boxes of cut *Roses* from Messrs. Paul & Son, the Old Nurseries, Cheshunt. The blooms were extremely fresh and good in colour, especially *Céline Forestier*, *Duc de Rohan*, *Cheshunt Hybrid*, *La France*, *Annie Laxton*, *Belle Lyonnaise*, *Duke of Edinburgh*, *Madame Denis*, pure white; *Madame Willermoz*, &c.—an excellent collection. Mr. W. Iggulden, gardener to R. B. Wingfield-Baker, Esq., Orsett Hall, Romford, exhibited a basket of blooms of *La France*; both flowers and foliage were alike superior, and they were arranged with much taste. Mr. James Wheble, Bulmershe Court, Reading, exhibited trusses of *Rhododendrons* from a tree upwards of eighty years old. The variety is *Russelliana*, scarlet. They were surrounded with trusses of a white variety, *Snowdon*, from the same exhibitor.

We next arrived at an extensive, varied, and excellent miscellaneous collection from Mr. B. S. Williams. Flowering plants predominated, the most effective being *Franciscea calycina*, *Azaleas indica* vars. and *mollis-Ericas*, &c. The collection also contained small and heavily fruited plants of *Oranges*. *Dracena Bausei* was very striking in this group, as also was *D. Goldiana*.

Adjoining Mr. Williams' group was a remarkable collection of Orchids from Sir Trevor Lawrence, Bart., Burford Lodge, Reading. In the centre of the group a large plant of *Oncidium Marshallianum* spread its golden branches, which drooped over the smaller plants like a fountain of gold. In fine contrast with this plant was the dwarf and equally bright *Oncidium bifolium major*, the plant being on a block and profusely flowered. *Dendrobium thrysiflorum* and *D. Dayanum* were very fine, and *Lælia majalis* with its reticulated lip was in grand condition. *Cattleya Skinneri* was represented by a large plant with highly coloured flowers. *Odontoglossum Cervantesii decorum*, *O. Dawsoni*, *O. scepterum*, *O. Andersonianum*, *O. cirrhosum*, and *O. vexillarium* were all excellently exhibited. The flowers of the last-named grand Orchid were the finest that we have ever seen. They were $4\frac{1}{2}$ inches across measured diagonally. The plant was only in a $3\frac{1}{2}$ -inch pot, and contained two spikes, seven flowers being expanded. The health and vigour of the plant was altogether remarkable. The *Masdevallias*, especially *M. Harryana*, were also very fine, as were *Oncidium papilio* and *Cypripedium caudatum*. It was a grand collection of plants—an exhibition of itself.

Mr. Aldous, florist, Gloucester Road, arranged a group of decorative plants, but they were too much crowded. Mr. R. Parker, Tooting, staged plants of *Scillas*—*S. nutans rosea*, *S. n. violacea*, *S. campanulata maxima rosea* and *S. c. maxima alba*, very fine; also cut blooms of *Irises*. Mr. Green, gardener to Sir G. Macleay, Bart., Pendell Court, Bletchingley, had a botanical commendation for *Ichroma elegans*, a *Solanum*-like plant with drooping lilac-purple flowers; and a cultural commendation for *Houstonia cærulea*, a low-growing North American perennial, growing only an inch high, and covered with a profusion of small blue and yellow flowers, which produced a charming effect. Mr. J. Day, Tottenham High Cross, was awarded a vote of thanks for *Cypripedium Stonei* var. *platytanum*, a striking and beautiful variety. Mr. Brown, Brent Nurseries, Hendon, exhibited a new crimson decorative *Pelargonium*, *F. A. Dickson*; it was very floriferous, and will be useful for market purposes. Mr. J. Mayo, Oxford, staged about a hundred blooms of *Maréchal Niel* *Roses*. Mr. Dean exhibited cut flowers of a few hardy border plants; and last but by no means the least noteworthy was a collection of *Gloxinias*, which contained some splendid varieties from the Society's garden at Chiswick.

Large gold Banksian medals were awarded to Messrs. J. Veitch

and Sons for groups of Roses, Azaleas, and cut blooms of Rhododendrons; and to Sir Trevor Lawrence, Bt., M.P., for his collection of Orchids. Small gold Banksian medals were voted to Mr. J. Wills for groups of Gloxinias and miscellaneous plants, and to Messrs. Rolisson & Sons for a collection of plants. Silver-gilt Banksian medals were awarded to Messrs. H. Lane & Son for groups of Roses and Azaleas, and to Mr. B. S. Williams for a group of plants. Silver Banksian medals were voted to Messrs. Paul and Son for cut blooms of Roses, and to Mr. J. Aldous and Messrs. Osborn & Sons for collections of plants. Silver Flora medals were awarded to Messrs. W. Paul & Son for Roses in pots and cut blooms, and to Mr. Turner for Azaleas and Palms; and bronze Banksians to C. Winn, Esq., for *Odontoglossum cirrhozum*; and to Messrs. Mayo & Son for cut blooms of *Maréchal Niel* Roses.

Votes of thanks were awarded to Mr. B. Parker for a group of herbaceous plants, to Mr. W. Iggulden for a basket of Roses, to Mr. J. H. Goodacre for flowering sprays of *Stephanotis* and *Bougainvilleas*, and to J. J. Wheble, Esq., for cut blooms of *Rhododendrons*.

NOTES AND GLEANINGS.

WE are pleased to learn that His Majesty the KING OF THE BELGIANS has been elected an Honorary Member of the Royal Horticultural Society. His Majesty is well known as an ardent patron of horticulture, and has done and is doing much to promote the extension of that industry both in Belgium and England. His Majesty has graciously accepted the honour tendered to him by the Council of the Society.

— AT the General Meeting of the ROYAL HORTICULTURAL SOCIETY held on the 7th inst. the following candidates were duly elected Fellows of the Society—viz., Thomas Benskin, Mrs. Bolton, Mrs. Buchanan, J. Scarlett Campbell, David Carnegie, Lady Emily Cavendish, Admiral Sir James Drummond, Lady Augustus FitzClarence, Captain Thomas Gardner, Charles Clayton Glyn, William Grogan, William Hurst, R. R. Hyatt, Major Charles Keith-Falconer, Hon. Mrs. Locke King, John Jekyll Kingsford, Robert A. Laing, George Murray Lang, Major Lawrie, James Ebenezer Saunders, F.R.S., Mrs. Arthur Tower, Lady Turing, Florence Lady Westbury, Charles K. Wild, Arthur J. Wright, &c. Miss Desvœux, William Beddoe, Miss Kate Jurgensen, Henry Armstrong, were admitted Guinea Members.

— ONE of the richest and most satisfactory displays of *HERBACEOUS CALCEOLARIAS* that has come under our notice is in the conservatory of R. Hudson, Esq., at Clapham Common. Mr. Rapley, the gardener, has grown about three hundred plants in a manner that places him high on the list of successful cultivators. It is not the large size of the plants that renders them noticeable so much as the exuberance and cleanliness of their foliage, and the quality, freshness, and brightness of the flowers. Many of the plants are in 8-inch pots, and these are quite worthy of being arranged at any public exhibition. They are not, however, more noteworthy than are the plants in 5 and 4-inch pots. It is only by judging a plant in conjunction with the size of the pot it is grown in that the true estimate of its merits can be determined. Judging the smaller plants by this test we can assert that we have never seen plants to surpass Mr. Hudson's. They are altogether admirable, and their owner may with commendable pride show them to the most critical of his many visitors. They are home-decorative plants of the first order of excellence, and are giving a rich reward for the care that has been bestowed on their culture. It is worthy of mention that not one plant out of the entire number grown has "gone off," and that there is not one variety unworthy of a place in the conservatory. The seed was saved from selected flowers by the grower of the plants, and was sown in July, and the plants were grown on generously without check from any cause. That is the secret of their excellence—steady onward growth which can only be secured by unremitting attention. They are grown in very strong soil and are potted firmly. The plants are correspondingly strong, yet dwarf—so much so that sticks are not needed to support them, but only to enable the branches being tied out so as to afford room for the expanding flowers. Although the side shoots are numerous and the heads are level and symmetrical, yet the leading shoots have never been pinched nor stopped; the plants have branched naturally, as they will do under good cultivation, and the advice that is not infrequently given to "stop the shoots in order to secure bushy and sturdy plants" may be regarded as obsolete, for it is impossible that plants more dwarf, bushy, and sturdy can be grown than the unstopped specimens referred to. The only stimulant employed to sustain the vigour of the plants is clear soot water, and the rule of applying it is the safe one—weak and often

— MR. WILLS, who is the only English exhibitor of plants at the PARIS EXHIBITION, besides having furnished in an artistic manner a conservatory erected by Messrs. James Boyd and Sons of Paisley, is also, we learn, competing with French exhibitors in several classes, including those for new plants. His Royal Highness the Prince of Wales, accompanied by H.R.H. the Princess of Wales and their Royal Highnesses the Crown Prince and Princess of Denmark, paid a special visit to the conservatory referred to on the 4th inst., and were received by Mr. Wills and Mr. James Boyd, who had the honour of explaining the construction of the building and the arrangement of its interior to their Royal visitors. Mr. Wills and Mr. Boyd were very highly complimented on the success of their undertaking. Mr. Wills has employed some of his choicest plants in the arrangement of the house, and has avoided all staging and vases in order to show the natural style of artistically arranging conservatories and winter gardens. Her Royal Highness the Princess of Wales, charmed with the beauty of the arrangement, requested Mr. Wills to carry out a similar work in the gardens of Marlborough House. Mr. Wills had the honour of presenting bouquets of Roses to the Royal ladies on the occasion of their visit. On leaving the conservatory H.R.H. the Prince of Wales shook hands with Mr. Wills, and thanked him for the pleasure the conservatory and its contents had afforded him. Many English manufacturers of horticultural implements are represented at the Exhibition, and their products are, we are informed, attracting much attention, and are securing the high approval of visitors who are interested in this important department. The Prince has carefully inspected the several exhibits, and has gracefully acknowledged, as President of the British section, the enterprise of the several exhibitors and the excellence of their work. The first purchase made by the Prince at the Exhibition was of one of Barnard, Bishop, and Barnard's slow combustion stoves.

— THE following is the arrangement of Judges for the GREAT SHOW AT PRESTON, which opens on July 10th:—Stove and greenhouse plants, Ericas, &c., Messrs. Baines and Stevens. Orchids, Ferns, and new plants, Messrs. Dominy and Smith, Kew. Crotons, Dracenas, Mr. Bull's cups, &c., Messrs. Parker and Moore. Pelargoniums, Fuchsias, Begonias, &c., Messrs. Fraser, and Harrison, Knowsley. Roses, Messrs. Peach and John Lane. Groups of plants, miscellaneous, bouquets, Conifers, &c., Messrs. Findlay, Wills, and McNab. Fruits (Society's prizes), Messrs. Miles and Smith. Fruits (Messrs. Veitch's prizes), Messrs. Thomson, Drumlanrig; Judd, Warwick Castle; Clarke, Studley Royal; and Speed, Chatsworth. Vegetables (Society's prizes), Messrs. Bartram, Sefton Park; and M. Saul. Vegetables (Messrs. Carter and Suttons' prizes), Messrs. Douglas and Penny. Implements, &c., Messrs. Hibberd, and Ingram, Belvoir. Judges of cottagers' produce to be appointed by the Preston Committee.

— WE regret to learn that much DAMAGE is being done to the FRUIT TREES IN KENT by the presence in great numbers of a small weevil, *Otierynchus picipes*. The weevils infest the trees in thousands and devour both blossom and young leaves, and also eat the dormant buds and bark. The same pest has destroyed some Rose trees in Mr. Druce's garden at Woodford. An useful hint has been communicated to us by Mr. Druce, who has been endeavouring to prevent the weevils ascending the stems of his standard Rose trees. He found that smearing the stems with a ring of birdlime completely arrested the progress of the weevils. The weevils when not feeding conceal themselves in the earth. Applications of gas lime and moderately strong solutions of ammonia to the soil are recommended as means of checking the increase of the destructive pest. It is probable that a weak solution of paraffin and water would have the same effect. It would be advisable also to apply paraffin very much diluted to a portion of the stems and even foliage of the trees with a view of ascertaining if they cannot be rendered distasteful to the insects, while the solution is not sufficiently strong to injure the trees.

— MESSRS. FOLLOWS & BATE, Dutton Street Works, Manchester, have introduced an ingenious contrivance for fastening Vines and climbing plants to the wall or paling against which they are to be trained.

— WE learn that H.R.H. the Prince of Wales, when inspecting the English exhibits at the PARIS INTERNATIONAL EXHIBITION, was much impressed with the magnitude and general excellence of the stands of the eminent firms of Sutton and Sons, Reading; Carter & Co., High Holborn; and E. Webb

and Sons, Stourbridge. The collections of seeds, roots, grasses, &c., arranged by the respective firms will represent the extent and high character of the British seed trade. His Royal Highness expressed his congratulations to the exhibitors on the superiority of their stands, and accepted catalogues of their seeds.

— THE MEMBERS OF THE BROCKHAM ROSE ASSOCIATION are this year to hold their Show on June 27th in the grounds of Holmwood Park by invitation of Mr. Gough Nichols. The membership of this Society is restricted to sixty, to be confined for the future more especially to West Surrey. The Judges who have undertaken the office for 1878 are "D. Deal," the well-known Hon. Secretary of the National Rose Society; W. W. Saunders, Esq., F.R.S.; and Mr. George Paul of Messrs. Paul & Son, Cheshunt. The Local Secretaries are the Rev. Alan Cheales and Charles Mortimer, Esq. The Hon. Treasurer is Capt. E. W. Lang, R.N., under whose able management the Society shows a balance of £19 1s. 6d.

— WE are pleased to observe that the SHROPSHIRE HORTICULTURAL SOCIETY is in a flourishing state financially. According to the balance sheet the expenditure last year was £716 5s. 10d., while the income, including a balance from 1876 of £469 1s. 1d., was £1444 10s. 11d. The balance in hand at the commencement of the present season, amounted to £728 5s. 1d., or £12 0s. 1d. in excess of the whole of last year's expenditure. It is seldom that we have the pleasure of noting such satisfactory financial results in connection with horticultural societies. Prizes to the amount of £275 are offered at the next exhibition, to be held on August 14th and 15th.

— BY the aid of correspondents situated in the various districts of England—also in Ireland, Scotland, and Wales—we are enabled to submit the most reliable estimates attainable as to the FRUIT PROSPECTS OF THE PRESENT YEAR. The accounts, as may be expected, vary somewhat in the different localities, but the most important crop of all—Apples—is, weather permitting, expected to be very large in almost all districts. Pears are very variable, but in the aggregate the yield can only be regarded as a poor one. Plums have sustained injury by the frosts of March and April, yet fairly good crops are expected. Cherries promise to yield well. Peaches, Nectarines, and Apricots vary extremely; in some districts the trees are barren, in others they are laden with fruit. The yield on the whole will probably be moderately good. Gooseberries and Currants promise to produce good but not heavy crops, and Raspberries and Strawberries have an excellent show of blossom. The foliage of the trees is expanding freely, and will afford valuable protection to the fruit against any frosts that may yet occur, and the trees are singularly free from insects.

— WE have received the first schedule of the PUTNEY, FULHAM, AND WANDSWORTH CHRYSANTHEMUM SOCIETY. The Society has been established by the gentry and gardeners of the district with the object of stimulating the culture of flowers and fruits. Baron Pollock is President of the Society, which has also the advantage of an influential body of Vice-Presidents and a practical Committee. The show is to be held on November 12th. Upwards of forty prizes are offered for Chrysanthemums, and classes are also provided for stove and greenhouse plants and fruit. Special prizes are further offered by F. D. Galpin, Esq., and by Mr. Stevens of St. John's Nursery, and Mr. Moore of the Richmond Nursery, Putney. The Society appeals for support to all lovers of horticulture in the district, and we shall be glad to hear that the appeal has been well responded to. Mr. J. Moore, Upper Richmond Road, Putney, is the Secretary of the new Society.

— AT the READING HORTICULTURAL SOCIETY'S SHOW, which is announced to be held on May 23rd, we are informed that besides the prizes offered by the Society, a Veitch memorial medal and a prize of £5 will be offered for three stove and greenhouse plants, Orchids excluded.

— WE recently recorded that fifty thousand TULIPS were flowering in the nursery of Messrs. James Carter & Co. at Perry Hill, Sydenham. We have subsequently had a glance at the gorgeous beds, for gorgeous they were, and indeed are. Such a brilliant mass of colour is seldom to be seen, in England at least, as the display in question. It is difficult to determine which are the more beautiful varieties, as beauty is a relative term and is solely governed by individual taste; but especially glowing are such useful sorts as Vermillion Brilliant, Keyzers Kroon, Duchesse de Parma, Gloria Solis, and Artus. Of more delicate tints are Rose Gris de Lin, a

charming variety, and Royal Standard, an attractively striped flower; and of the self colours the white and yellow Pottebakkers are wonderfully fine. Murillo and La Candeur are fine double white flowers. Only a combination of favourable conditions, such as good bulbs, good soil, and genial weather during the blooming season, could have produced a display so eminently satisfactory as the great and glowing exhibition that the firm has provided.

— WE are requested to state for the information of amateur growers and exhibitors of Roses in pots that Mr. Charles Turner, Mr. George Paul, and Messrs. Veitch & Sons have decided not to exhibit in the open class for six Roses in pots at the Royal Botanic Society's Show on May 22nd; thus, by the consideration of the great exhibitors named, the "open" class referred to practically becomes an amateurs' class with prizes amounting to £6, £4, and £2, for we cannot suppose that any other trade growers of celebrity will oppose any amateur exhibitors who may compete, and who have no class specially provided for them by the Society.

AURICULA SHOWING.

YOUR correspondent "EMBRYO" has hit a blot in the schedule of the Show at the Crystal Palace, and one which, owing to the unfortunate illness of the Secretary at the time of preparing it, could not be remedied. I had proposed that, seeing there were several who wished to commence growing, and perhaps showing, Auriculas (for I had started two friends myself with small collections), that classes should be instituted for them in the same way as in the National Rose Society—viz., that while if possible still retaining the classes already in the schedule, there should be added classes for four and two Auriculas for exhibitors not competing in the previous classes. I should much prefer this to "EMBRYO's" plan of mixing-up Auriculas and Alpines. Anybody can grow and bloom the latter, but what we want to see is the Auricula taking its place about London as it used to do "when I was young," and instead of two or three growers competing having ten or twenty, and this arrangement would give such beginners a chance. The plan met with the approval of one or two of the members of the Committee, and if all goes well I fondly hope may be adopted another year. As there may be persons good-natured enough to imagine I write with an eye to business, let me say I should never consider myself a small grower however my collection may have been diminished.—D., Deal.

KNIGHT'S PROTECTING BROCCOLI.

THIS Broccoli is just now in fine condition with us. We have grown about a dozen leading sorts during the winter, but not one of them has equalled this. The seed was sown about the second week in May last year. When the plants were transferred to the main quarters they were planted only 18 inches apart each way. They have grown about the same in height, and the heads average 7 inches in diameter. At this size they are in prime condition, and many of them are perfectly good when about as large again. Five or six hundred Broccoli plants growing 18 inches apart and bearing firm white heads of these dimensions are not to be despised, and I should like to know how much finer anybody would have expected the heads to have been had the plants been growing as wide again apart? I shall save some of the best of the plants for seed, as, excepting Veitch's Autumn Protecting, I have not seen a Broccoli to equal it for a very long time. Meanwhile let me advise those who want Broccoli at this time next year to lose no time in sowing a little seed of the true Knight's Protecting, and I am sure they will always try to have it afterwards.—A KITCHEN GARDENER.

VEGETABLE CULTURE.

CHAP. XVII.—KIDNEY BEANS.

BEING a native of India the Kidney Bean is one of the most tender vegetables in our gardens. Its season in the open air is rather short, but it submits to forcing better than any other vegetable, and in this way it may be had very early in spring and late in autumn without much trouble; but as the mode of outdoor culture is much more general our first attention will be given to it.

As everyone knows, there are two kinds of Kidney Beans—the tall growers, or Scarlet Runners as they are called, and the dwarfs or so-called French Beans. Although many consider

the dwarf kinds the most tender and best to eat, the runners are equally good when well grown, and about the whole of them it may be said that no greater delicacy can be had in the way of vegetables than a dish of tender well-grown Kidney Beans; and they have one great claim on poor people that must be overlooked, or Kidney Beans would be more grown in cottage gardens than we find them. The claim referred to is their palatableness without any expensive accompaniment, as no sauce nor gravy is necessary to make them toothsome. As to their cultivation, that is simple enough. A rich open soil not less than a foot in depth suits them admirably. We never make any great preparation for our Kidney Bean crop, especially for the dwarf-growing kinds, and we have never failed with them in any kind of soil; but when a really superior row of runners is wanted and the soil is poor a trench should be taken out as for Celery and have a large quantity of manure dug into the bottom of it, sowing the seed 3 inches deep and covering it carefully over as the trench is filled in.

The last week in April or the first week in May is early enough to sow Kidney Beans in most localities. The young growths will not stand the slightest frost, therefore the leaves should never be aboveground until all chance of frost is past. Of course those who are inclined to put in a chance crop earlier may do so. We often do this as we did this spring, when seed of the Canadian Wonder was sown at the end of March, and the plants were showing themselves in the row before the end of April. Luckily there has been no frost, or we should have had to sow again. The dwarf-growing sorts may be sown in rows 18 inches or 2 feet apart. As a single row of moderate length will produce a great quantity of runner Beans; and as nothing is better than these tall-growing Beans for affording shelter to tender crops, or a screen to hide unsightly objects, it is in positions of this kind that they should be grown. The seed of runners may be sown 3 inches apart, dwarfs 2 inches; or the drills may be taken out the width of a spade and the seed be spread thinly over the whole width. As soon as the young plants are 4 inches high a little soil should be drawn to their stems with a hoe. Few of the dwarfs require stakes, but stakes should be put to the runners as soon as the first-formed rough leaves are formed. The stakes may be from 3 to 7 feet high. They should not be allowed to exceed the latter height. The pods should all be gathered immediately they become ready, as leaving them until they are too old to use soon weakens the pod-producing power of the plants. The same remarks apply to dwarfs. From the beginning of May seed of dwarfs for succession should be sown every three weeks until the beginning of August. In fine autumns this last sowing often proves very useful. The tall sorts continue bearing for a much longer time than any others. Runners coming into fruit in June will frequently bear abundantly quite up to the time of frost if the pods are gathered before they become too old, and a few waterings of liquid manure be given in August and September. Where there is a spare frame or two empty in August it is a good plan to sow a few rows in them of the dwarf sorts, and when frost occurs to place the lights over them. By this means the gathering may often be prolonged three weeks or a month longer than out of doors. They should have a firm rich soil in which to grow in frames, and they should be planted the same distance as out of doors. Bending sticks over the rows and covering them over with mats will often give a few dishes later than when uncovered.

Amongst dwarf sorts for general cultivation Canadian Wonder is very far in advance of all others. It grows about 2 feet high. The pods average a foot in length and their numbers are prodigious. Newington Wonder, Fulmer's Forcing and Osborn's Forcing are the next best sorts. The two latter are unsurpassed for forcing. Notes on forcing may, however, be deferred until a more seasonable time.—A KITCHEN GARDENER.

GREENHOUSE ROSES.

THE description "M. M." has given of his splendid Maréchal Niel Rose tree induces me to say a word about Lamarque, Eugène Appert, and Céline Forestier, which are flowering profusely in a cool vinery here, along with Alba rosea and Bessie Johnson. All of those Roses have been a perfect picture for some time. They are planted out in a bed in the middle of the house with a walk all round it, and trained over bent arches made of iron rods and on the rafters as well, where I have removed some of the Vines. Lamarque especially has grown to a great size, and is at this moment covered with its

beautiful white buds and flowers, against which quantities of the large bright pink blossoms of Eugène Appert look lovely. The buds of Lamarque are perfect for buttonholes. Céline Forestier, too, grows well and is flowering, its blooms being great favourites with ladies for their dresses. Alba rosea flowers well, but is not a quick grower like the others; and Bessie Johnson, with its delicate pink flowers, is as deliciously sweet-scented as the old-fashioned Attar Rose. We have been cutting from these plants for the last three months, and they are still a mass of flowers and well repay the trouble that has been spent upon them. Underneath them is a kind of spring garden, Rhododendrons, Azaleas, Lilacs, bulbs, &c., looking very gay at present. On the back wall I have young plants of Maréchal Niel and Gloire de Dijon which have already produced some flowers, and I hope by next year the former may equal "M. M.'s" large plant, as it has started to grow and is in fine health.

Later on these arches and almost the whole house will be covered by the beautiful hanging flowers of Tacsonia Van-Volxemii and the pale blue Maurandya; and in the next house I have a plant in a 12-inch pot of Tropæolum pentaphyllum which has grown along wires in all directions, and its gracefully hanging shoots covered with its curious flowers form a very pretty object. I have brought a shoot of Lamarque into the next house by removing a pane of glass, and intend trying it on the back wall, and will write you the result, as I am a constant reader of your Journal. All my Roses are on their own roots.—H. T. KILLNER, *Gardener, Middleton Hall, Llanarthney, Carmarthen.*

WORMESLEY GRANGE.

THE small parish of Wormesley with its richly wooded hills and picturesque valleys forms one of the most secluded districts of Herefordshire. At the last census in 1871 there were only eighteen dwelling houses with eighty-seven inhabitants, and except at one spot it is difficult to see any two of the houses at the same time. Wormesley Grange is the chief house in the parish, and it is celebrated as the birthplace of Richard Payne Knight and Thomas Andrew Knight, *par nobile fratrum*, the one as distinguished for his literary genius and taste as the other was for his scientific horticulture. Richard Payne Knight was M.P. for Leominster and Ludlow, author of the long didactic poem "The Landscape," and the munificent donor of ancient bronzes, coins, and other articles of vertu to the British Museum; and Thomas Andrew Knight, as has been seen in the sketch of his life in a former number, was the President of the Horticultural Society of London for many years, and he may be called the founder of horticultural science in Great Britain.

Wormesley is mentioned in Domesday Book as one of the possessions held by Roger de Lacy of the King. It is, however, chiefly known in history from the foundation of a Priory of Augustine Canons of the Order of St. Victor in the parish. This Priory is believed to have been established (Dugdale's "Monasticon") as early as the time of King John or the beginning of Henry III., by Richard Talbot of Painswick. It was largely endowed by his successor, Gilbert Talbot, Lord of Credenhill, who gave to the Priory lands in Wormesley, Eardisley, King's Pyon, Weobley, and Lyonshall. It was dedicated to St. Mary and St. Leonard de Pyona. The charters granted to this Priory were very numerous. In the twenty-sixth year of Henry VIII. the total value of its revenues amounted to £89 3s. 9d. per annum, the nett income to £73 10s. 2d. George Earl of Shrewsbury, the descendant of the Talbots, in his letter to John Scudamore, surveyor of monastic property at the dissolution, prays that "the poore house of Wormesley, which is of my foundation (wherein) many of myne ancestors do lye, and the moost parte of the furst of the poore name that I am comyn of" might be spared.—(*Camden Soc. Publ. vol. xxvi.*)

The other chief benefactors to Wormesley Priory were Sir Walter Mass, Edmund Earl of Lancaster, Roger Mortimer, Adam Lucas, John de Oldcastle, John Miners, Roger Pychard, William de Baskerville, Robert de Croft, and William de Capeson. There is a register of Wormesley Priory in the Harleian MSS. in the British Museum, No. 3686, in folio, and some proceedings relating to this property were among the records of the Augmentation Office.

"The Mansions and Manors of Herefordshire," by the Rev. C. J. Robinson, thus traces down its history. After the dissolution the site of the Priory with the appurtenances in Wormes-

ley, together with the rectory and advowson, were granted by Henry VIII. in 1547 to Sir Edward Fiennes, Lord Clinton. From his heirs they passed to Thomas Baskerville, and reverting to the Crown, were given by Queen Elizabeth in 1602 to Silvanus Scory and his heirs, the son of John Scory, Bishop of Hereford, 1559-85.—(*Blount's MS.*) Shortly afterwards they were in possession of Walter Vernon of the Inner Temple, who sold them in 1629 to William Crowther, citizen and haberdasher of London, sometime M.P. for Weobley, and founder of the grammar school in that borough. He was succeeded in 1653

by his nephew, John Crowther, whose widow left Wormesley in 1716 to her cousin, Thomas White of the Inner Temple. He died in 1742, and in 1747 the estate was sold to the Rev. Thomas Knight, who took up his abode at the Grange House, and whose two gifted sons, as we have already said, were born there. The present owner is A. R. Boughton Knight, Esq., of Downton Castle.

The foundation of the old Priory may still be indistinctly seen in the grass of a meadow near the Grange House. Some remains were standing in 1718, but they retained little of their



Fig. 54.—WORMESLEY GRANGE.

monastic character, as shown by a sketch preserved among the Phillipp's MS., except in the stone-mullioned windows and the lofty archway which formed the chief entrance of the house. The only remains existing at this time are scattered stones more or less richly carved, which are preserved as relics or built into a neighbouring wall.

The Grange House was rebuilt by one of the Whites, and was improved and afterwards occupied by the Rev. Thomas Knight from his marriage until his death in 1764. The tombs of himself and his sons—massive monuments in granite—form the chief objects in the little churchyard of Wormesley. There are no traces there of any monuments to the Talbot family, the Gages, or the Baskervilles, though written records say they should be there.

The present use to which Wormesley Grange is now applied

is that of an ordinary farmhouse. The pilgrim of science who travels here in search of traces of Mr. Knight's life-long labours will be disappointed, for though the old orchards which he planted are still in existence, there are no records of any kind connected with them, and even the traditionary evidence of what they formerly were is all but extinct. We naturally looked for the original trees of some of the fruits Mr. Knight succeeded in raising, but none were to be found. The orchards are much decayed which he planted, and the present occupier is ignorant even of the names of the kinds which constitute them. From what we saw we think that the trees are merely seedlings which have been planted out to prove their merit; but merit there is none, for though our visit was made in autumn when the fruit was ripe, there was none that could be considered worthy of being named. For the historical portion

of this paper we are indebted to the courtesy of our friend Dr. Henry Bull of Hereford.

THE NATIONAL SOCIETY'S AURICULA SHOW AT MANCHESTER.

THE first question that would be put to me by Auricula growers and lovers, knowing that I had seen both the northern and southern Shows, is, Which do you think the best? And strange to say my answer would have to be an undecided one, or rather it would be governed from the standpoint from which they were viewed. In extent the southern one, although with fewer exhibitors, was vastly in excess. The classes for fifty and twelve have no place in the northern Show, and I think it would tend greatly to a better appreciation of the flower if the former of these were done away with in the south. To outsiders it is most misleading. The amount of the prizes and the number of the plants leads the uninitiated to believe it to be the best and to contain the finest flowers, whereas in effect, while some good flowers are shown, there are a vast number of inferior and middling sorts; yet, if we turn to the reports of the daily papers, this class is evidently regarded as containing the *crème de la crème* of the Exhibition. If, on the other hand, the quality of the two Shows be inquired after I would unhesitatingly give it to the northern Show. There was a freshness and brightness about many of the plants—indeed the majority—which were in vain sought for at the Crystal Palace. The fact was that the flowers of the southern exhibitors were past their best. The date was sufficiently late, and the steaming weather of the week preceding the Exhibition had been too much for them; while I for one cannot believe that Auriculas opened in 60° of heat, and brought up there a couple of hundred miles, and two or three days out of their pots, can look as fresh or as bright as those grown in the old-fashioned way without heat and shown close at home. Independently of these considerations the blooms were younger and consequently brighter than those shown in the south.

It happens that we are sometimes obliged to eat the leek, at least unless one is so obstinately pigheaded as never to acknowledge a mistake. Only in last week's Journal I said that I should never break the tenth commandment in connection with Prince of Greens; but Mr. Wilson of Halifax has made me eat the leek, for he exhibited it in such condition that it was entirely a different flower to any I have seen of it before. It has indeed one grand defect—the watery tube, but the green is so fine and the paste so solid that one can put up with this; and we have a right to echo Mr. Horner's words when he said that all Auricula growers were much obliged to Mr. Wilson for showing what can be done with it. It is no slight tribute, too, to the success of the late Mr. Traill that the premier prizes in the green-edge class and the premier green edge in the Show were awarded to two of his flowers, Anna and Prince of Greens. Alexander Meiklejohn was also shown in better condition than I have yet seen it by Mr. Woodhead of Halifax, and occupied the position of premier grey edge in the Show, but then neither George Lightbody nor Lancashire Hero were up to the mark this year. In white edges John Simonite will, I imagine, take one of the highest places in a limited class. George Levick was only shown in one instance and not in good condition, and there were no other new flowers of any mark exhibited. Mr. Booth's fine white was past. The northerners repudiate, and I think justly, the southern notion of crutches for their flowers, for all who have ever written on the Auricula have given as one of its characteristics a strong stem that will support the truss; but I am sorry that they still think that three pipes form a truss.

The highest class was for six, and some of the collections exhibited in it were of great excellence. The first prize was awarded to Mr. Ben Simonite for the following—Seedling, George Lightbody, Mrs. Douglas, Lovely Ann, Alexander Meiklejohn, and Talisman; the last was exhibited also at the Crystal Palace, and is a bright green-edged flower. The second to Mr. H. Wilson of Halifax for Alexander Meiklejohn, Countess of Wilton, Leigh's Colonel Taylor, Traill's Prince of Greens, Heap's Smiling Beauty, and Pohlman's Garibaldi; these were all fresh well-bloomed plants, and were a great credit to the grower. The third to Miss Stewart of York for Ann Smith, Lightbody's Lord Clyde, Alderman Wisbey (coarse), Lovely Ann, George Lightbody, and Lancashire Hero. The fourth to Mr. Pohlman for Smiling Beauty, a very lovely example of this fine flower; Blackbird, Colonel Taylor, very beautiful; Ne Plus Ultra, George Lightbody, and Complete; and the fifth to C. Royds, Esq. In Class B, for four Auriculas, one of each class. Mr. Simonite was again first with Talisman, Frank Simonite, George Lightbody, and Duke of Argyll. Mr. Wilson second with Smiling Beauty, Page's Champion, a good example of this fine old flower; George Lightbody, and Richard Kay. Mr. Woodhead was third with Alexander Meiklejohn very good, Pizarro, Ashworth's Regular, and a seedling; and C. Royds, Esq., fourth with Traill's Mayflower, Ellen Lancaster, Litton's Imperator, and Smiling Beauty. In Class C, for two Auriculas, Mr. Royds was first with John Waterston and Blackbird, Miss

Stewart second with Robert Traill and Smith's Lycurgus, Mr. B. Simonite third with John Simonite and George Lightbody, and Mr. T. Mellor fourth with Blackbird and Alexander Meiklejohn. The class-showing brought out some fine flowers, a premier prize and eight others being awarded in each of the four classes. In green edges the premier prize was awarded to Mr. H. Wilson of Halifax for Traill's Anna, who thus carries off double honours in green edges. He was also first with Prince of Greens; Mr. Taylor second with Lancashire Hero, a pure green edge; Mr. H. Wilson third with Colonel Taylor; Mr. Wilson fourth with Page's Champion; Mr. Simonite fifth with a seedling and sixth with another seedling; Mr. Royds seventh with a seedling, and Mr. Wilson eighth with Highland Laddie. In the class for single grey edges Mr. Woodhead took the premier prize with Alexander Meiklejohn well-bloomed and fine; Mr. Booth first with Richard Headly, Mr. Woodhead second with John Waterston, Mr. Booth third with George Lightbody, Mr. Taylor fourth with Lancashire Hero, Mr. Wilson fifth with George Levick, Mr. Simonite sixth with Samuel Barlow a seedling, Mr. Booth seventh with Queen Victoria, and Mr. Simonite eighth with Conqueror of Europe. In single white edges Mr. Taylor took the premier prize with a good plant of Smiling Beauty. Mr. Wilson was first with Regular, Mr. Partington second with Kenyon's Ringleader, Mr. Simonite third with Traill's Beauty and fourth with Frank Simonite, Mr. Booth fifth with Traill's White Rival, Miss Stewart sixth with Ann Smith, Mr. Mellor seventh with Maggie Lauder, and Miss Stewart eighth with Richard Headly. In selfs Mr. Royds took the premier prize with Ellen Lancaster and first with the same, a fine smooth self; Mr. Bateman second with Blackbird; Mr. Wilson third with C. J. Perry, fourth with Garibaldi, and fifth with Netherwood's Othello; Mr. Royds sixth with Mrs. Smith; Mr. Pohlman seventh with Lord of Lorne; and Mr. Wilson eighth with Meteor Flag.

In the special prizes the prize for the best green edge in the Exhibition was awarded to Mr. H. Wilson for a beautifully bloomed plant of Traill's Anna, and for the best grey edge to Mr. Woodhead for Alexander Meiklejohn, and another for the best Lancashire Hero to Miss Stewart.

I have already given the names of the winners in the Alpine class; and I should add that, independently of the Auriculas, there was a very beautiful show of other flowers. Mr. Broome of Didsbury, Mr. Yates of Sale, Messrs. Standish & Co. of Ascot, and others exhibited some very charming groups of Orchids and other stove and greenhouse plants; while Messrs. Paul & Son showed a very beautiful collection of Roses, cut blooms, and a few in pots. The cut blooms comprised Edouard Morren, Maréchal Niel, Cheshunt Hybrid, Gloire de Dijon, Alfred Colomb, Souvenir d'Elise, Madame Victor Verdier, Marquise de Castellane, Catherine Mermet, Marchioness of Exeter, Camille Bernardin, La France, Madame Julie Daran, Madame de St. Joseph, Duke of Connaught, Capitaine Christy, Annie Laxton, Céline Forestier, Madame Falcot, Royal Standard, Perfection de Montplaisir, Princess Mary of Cambridge, Souvenir d'un Ami, Prince Camille de Rohan, Alba rosea, Marie Baumann, Madame Caillat, Comtesse d'Oxford, and Mrs. Laxton. Those in pots were Souvenir de Louis Van Houtte, Madame de Montchauveau, Mrs. Laxton, and Magna Charta. I am very much mistaken if we do not find Mrs. Laxton to be one of the very best Roses ever introduced. In shape, texture, and colour it is all that can be desired.

Polyanthuses, or "Pollys," as they are familiarly termed in the north, were not as extensively shown as I had supposed they would have been. The principal exhibitors were Mr. Beswick and Mr. Dyson, the former taking the chief place, the chief flowers exhibited being George IV., Exile, Lancer, Cheshire Favourite, and Lord Lincoln.

I had intended to have made a few remarks of a general character touching the Auricula, but as the report has gone to some length I must reserve them for another paper.—D., Deal.

MESSRS. JACKMAN & CO'S CLEMATIS SHOW AT THE CRYSTAL PALACE.

A MOST excellent display of the Clematis was arranged by Messrs Jackman at the Crystal Palace last week. The Show will be continued for some time. There is very great variety among the spring-flowering section of these beautiful climbers. The plants are of medium size, the object being not so much to show specimen plants of magnitude as a well-assorted number of the better varieties.

Among novelties I was most pleased with Sir Garnet Wolseley, belonging to the Patens type section. The flowers are of a very deep blue in colour, the next approaching to the old Jackman, but much more beautiful in the way in which the petals are shaded. The Queen is an improvement on Lady Lonsborough. There are some good specimens of Vesta, Maiden's Blush, and Miss Bateman among the whites. Fair Rosamond and Edith Jackman are both very fine varieties. New varieties, to me at least, named Robert Hanbury and Countess Lovelace, are also very good.

Mr. Jackman has diversified his stands with pots of choice

Rhododendrons, and has most effectively introduced window boxes of Clematis combined with Pyrethrums.

The whole Exhibition is good and well worthy of notice, and will repay any florist who will take the trouble to go so far as Sydenham.—WYLD SAVAGE.

A MINIATURE HOTBED.

HAVING neither plant stove, hothouse, nor hotbed, I was until lately rather at a loss for means to strike cuttings and cause seeds such as Vegetable Marrows, &c., to germinate quickly, and have tried many plans, one of the most successful having been the following, of which I enclose a sketch (section).

Let the inner pot be nearly half full of corks, the remainder of course being earth, and the space between the pots filled with moss pretty closely. Well soak the whole, and after

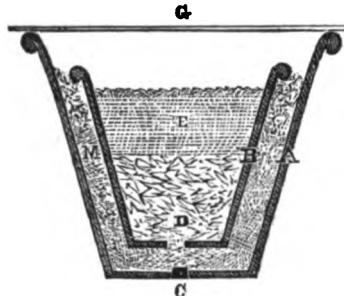


Fig. 55.

A, Outer pot.
B, Inner ditto.
C, Cork in outer pot.
D, Drainage.

E, Earth.
G, Glass cover.
M, Moss.

thoroughly draining cork the hole in the outer pot. Sow seeds or plant cuttings in the usual way and cover over both pots with a piece of glass (for cuttings a common round-topped glass shade will be required), and put on the top of the kitchen range, oven, or boiler farthest from the fire, the heat arising from which will start them in a short time. I have started Vegetable Marrow and Cucumber seeds in three days.—COTTAGE GROVE.

WORK FOR THE WEEK.

KITCHEN GARDEN.

PROVIDED the weather proves mild the planting-out of Celery for the early crops may be proceeded with. We plant two rows in quincunx order in a trench, the plants being about a foot apart. For early crops, however, we often resort to the bed system, the beds being 4 feet 6 inches wide, with 4-feet space between them. The plants are put out crosswise of the trench in rows 15 inches apart, and the plants 12 inches asunder. Those plants from seed sown early in March should, after they have been well hardened off, be pricked out 8 inches apart in rich light soil in an open situation, keeping them moist and shaded from bright sun until established. Instead of pricking off the plants they may at once be planted in the trenches at about 4 inches apart to allow for casualties, afterwards thinning them to a foot distance from each other. Vegetable Marrows and ridge Cucumbers plant out under handlights. We like to take out a trench about 2 feet 6 inches wide and a foot deep, filling it with hot dung and leaves about 6 inches higher than the ground level, and cover with the soil from the trench. The ridges are 6 feet apart from centre to centre; the Vegetable Marrows are planted 6 feet apart, and the ridge Cucumbers 4 feet apart. The Marrows are planted singly, and the Cucumbers in pairs. Potatoes above ground should be well hoed, and when they are 6 inches high earth them up moderately, making the ridges wide so as to allow plenty of tuberous space. If it is intended to crop between the rows with Broccolis, &c., the space between the rows should be well forked before the tops have spread much. Remove the flower stems from Rhubarb, cutting them back to the base. The young growths of Asparagus are often eaten by slugs. A dressing of salt at the rate of a peck per rod will destroy them and benefit the crop; but as slugs increase rapidly two or three applications of salt are necessary at twelve to fifteen days' interval.

HARDY FRUIT GARDEN.

Strawberries which have been forced may be planted out. The soil should be made quite firm about the balls and a good watering given. The plants will afford some fruit in late summer and an abundant crop the following year. If such varieties as Vicomtesse Héricart de Thury (syn. Garibaldi) be shaken out, potted, placed under a north wall until established, then stood in the open

and well supplied with water and liquid manure, they will fruit in autumn on shelves in a light airy house with a temperature of 60° minimum after they show for bloom. Established plants should not have the mulching delayed beyond the flowering period, and should be well supplied with water after the principal flowers open whenever the weather is dry. Carefully examine the foliage of all fruit trees, and if any caterpillars are found destroy them at once. Proceed with the stopping of the shoots of Apricots which are growing very vigorously. Nail in all well-disposed shoots, stopping all not required to three leaves, cutting forerights clean away; or, if the trees are very vigorous, that may induce "gum," in that case stop the shoots at the first leaf. The fruit from the abundance of foliage is now so well protected as to render the removal of the protecting material necessary. Thinning the fruit where it has set thickly should be attended to in good time. With young vigorous trees the fruit may be left 9 inches apart. It is the greatest of evils in fruit cultivation to allow the trees to carry too much fruit and to put off the thinning in fruit-ful seasons to a late period, which so exhausts the trees that they bear very heavily one year and are very nearly barren the next. Thin early: the fruit in its small state is good for culinary purposes; but some desire a full crop of tart Apricots, and expect fine ripe fruit, which is practically impossible. Allowing the fruit to remain on until the size of small walnuts takes very much more from the size of the fruit allowed to ripen than were they removed when the size of marbles. Peaches and Nectarines should be commenced disbudding, but it should be done gradually, commencing with the more forward growths. Retain a well-placed bud at the base of each bearing shoot to replace the one now bearing fruit, and another at its extremity to secure a due supply of sap to the fruit; this shoot should be stopped at the second or third leaf unless required for extension, when train in its full length. The shoots upon young trees should be disbudded to 15 inches apart, and there will be the bearing shoots next year; the shoots intended to form branches should be trained 12 to 15 inches apart, overcrowding tending to sterility and small fruit. Fan training is the most suitable. Disbud and regulate the young shoots of Vines against walls, and if mildew appear apply flowers of sulphur. Recently planted fruit trees should be well watered and be given a mulch of short manure.

FLOWER GARDEN.

Press of work at this busy season often causes the mowing of lawns to be neglected, which impairs their beauty throughout the season. This ought not to be, a well-kept lawn and clean smooth walks being indispensable to the enjoyment of the garden. The planting-out season being at hand we have a few remarks to offer—viz., Complete as soon as possible the final arrangements, make good use of the lessons gleaned during the previous year, but do not strive to imitate others; it is the way to be always behind your neighbours. Strike out into a fresh path, aim at originality, arrange the colours carefully. Place scarlet and yellow in the distance, and tone down homewards, and have at least one panel or carpet bed near home; it will always be appreciated, and especially when the flower beds have their gaudiness washed out of them. Do not be in a hurry to plant out, but have the plants well hardened off, and every fine day fork over the beds and bury the sun heat. It will add air and warmth to the soil, and where these are the plants thrive gloriously. Turning over the beds in the spring when the surface is warm is of more consequence than many imagine. It was a good and common practice of old gardeners long ago. Roses must be carefully looked over for maggot. Any leaf from its curled appearance likely to harbour the pest should be squeezed between the thumb and finger. This is a better plan than opening the leaf and picking out the insect, which can hardly be done without injury to the young foliage. Green aphides are often troublesome, infesting the young shoots. If they attack them before the shoots are of sufficient length to be dipped in tobacco water, apply the latter overhead on a calm evening through a fine-rose watering pot. Annuals require attention in warding off slugs and other predatory vermin. A sprinkling of soot over the plants during a calm evening or early morning will make them distasteful to the slugs. Dry wood ashes will check their progress, and a dusting of quicklime will destroy those it falls upon. When annuals are sufficiently large to be handled the plants should be thinned out, which will allow of them attaining to stronger growth and finer flowers. Sweet Peas when a few inches high require trellises or sticks of some kind to support them, as also do Nasturtiums (*Tropæolum*), and *Convolvulus* vars.

FRUIT HOUSES.

Figs.—In the earliest house the main object will be the ripening of the fruit, those highest in colour usually being highest in quality. A little air should be left on constantly day and night, and a free circulation of warm air secured whenever practicable. Syringing must cease when ripening commences, and must not be resorted to again until the crop is gathered. A superabundance of water at the roots will cause the fruit to be poor in flavour, but enough must be given to maintain the trees in a healthy state. If the fruit has to be sent a distance it should be gathered before it is quite ripe, otherwise it should remain on the trees for some

days longer—until it is perfectly ripe. If the second crop of fruit be very abundant it should be well thinned, or the fruit will be small besides impairing the energies of the trees for early work another season. Attend to stopping, thinning, and tying-in the shoots, cutting out the strong unfruitful growths in order to admit air and light to the fruit. Trees in borders of limited area will require water two or three times a week, and if the growth is not luxuriant and carrying a heavy crop of fruit the water should hold guano or some approved stimulant in solution. Syringe the trees twice a day.

Pines.—Fruiting plants with the fruit in an advanced state require a moderately high temperature and moist atmosphere to secure large well-finished fruit; but ventilation must be strictly attended to, admitting air at the top of the house at 80°, maintaining the temperature by day at from that point to 90°, or 5° more with liberal ventilation, closing at 85°. Early closing, too close and moist an atmosphere with a high night temperature, enlarges the crowns, which are generally quite large enough without needing any special incentive to growth. Unless ventilation is early and ample scorching of the crowns may result, and large or scorched crowns spoil the appearance of the fruit. Examine the plants twice a week, applying water only when it is required; it may be enriched with guano or some other manure, but let it be weak, and do not give it after ripening commences. Syringe plants and house two or three times a week, employing fire heat to maintain the temperature at 70° by night and 75° by day. The bottom heat keep steady at about 85°, not less than 80°, nor above 90°. Plants from which the fruit is cut may be placed in a light or part of the house by themselves, keeping the suckers on them for another fortnight, or until the end of the month, when they may be potted along with those held in reserve from March. Potting the suckers as the fruit is cut entails corresponding constant potting, which is not necessary to secure a supply of fruit throughout the year. Three general pottings of suckers are all that are required—viz., March, June, and September.

Cherry House.—The stoning will now be complete. If the crop be heavy and fine fruit are wanted thin the fruit, and as the syringe will be laid aside the roots of the trees must be well supplied with water, giving a thorough soaking to the borders, whilst those in pots or tubs will require daily attention, the roots requiring a plentiful supply of water for the perfection of the crop. Care must be taken not to allow the fruit to get wet, as may occur through the open lights in case of rains. Measures must be taken to exclude birds by netting of sufficiently small mesh to keep them at bay.

Melons.—Directly it is noticed that any of the fruit commences changing for ripening water must be withheld and the temperature increased, also the fire heat if requisite, so as to admit of freer ventilation, for nothing contributes so much to high flavour as a free circulation of warm air. The soil, however, must not be kept so dry as to affect the foliage, or the chance of a second and subsequent crops will be seriously impaired. The atmospheric moisture also must be lessened, and even withheld altogether if the weather is dull. If the plants are very vigorous it will be well to cut the fruiting shoot partly through when the fruit commences ripening, so as to restrict the supply of sap and prevent the fruit cracking. We find, however, that a close moist atmosphere is promotive of cracked fruit, which must be cut when the first indications of cracking are noticed. They will ripen in a warm dry atmosphere, but are poor in flavour. The fruit should otherwise be cut before it parts from the footstalk, but not until it is very nearly ripe, and may be kept in a dry room at a temperature of about 60°. Some experience is necessary to know exactly when a Melon is fit to cut; they have most flavour when under rather than over-ripe. Plants should be held in readiness to plant out in pits and frames as they are cleared of bedding stuff. Sow seed for late crops, as good plants planted out early in June will afford fruit of good quality in August onwards. Plant one plant in a light, disbud to four shoots, take two to the front and two to the back, impregnate the blossom when six or eight female flowers are expanding upon a plant, stopping the shoots one or two joints beyond the fruit. One fruit may be retained upon each primary shoot, four to a plant; but if large fruit are wanted two to a plant are ample. Overcropping is fatal to high flavour.

PLANT HOUSES.

Greenhouse.—*Cassia corymbosa* is fine for late summer flowering, and should be encouraged to make robust yet short-jointed wood by having a light airy position and as near the glass as the growth permits. It does not make a great number of roots, and should not therefore be overpotted nor overwatered. Light turfy loam with a little leaf soil and good drainage will grow it well. *Neriums* pushing the flowers must not be neglected for water or the buds will drop. Syringe freely to keep down red spider. Cuttings may be taken off plants that have been placed in heat for early flowers, but the shoots should be well ripened. Plants in 6 or 8-inch pots are very useful for decorative purposes.

Richardia athiopica.—Large plants which have ceased flowering should be divided, potting the suckers into 4 or 5-inch pots, to be placed on ashes in a cold frame, keeping them close and moist, encouraging growth for a few weeks, when they may be planted

out in heavily manured beds or trenches in the open ground, treating them very liberally with water. They will make very much stronger plants than if kept in pots, and the spathes are large in proportion to the strength of the plants. Instead of potting the plants may be hardened off, divided, and planted out at once in the open ground, lifting and potting them in early autumn.

Pelargoniums of the show and fancy kinds should have the assistance of liquid manure from the time the first flowers are set if they are intended to afford a succession of bloom. It is well to leave a little air on at night, as the sun falling powerfully upon the foliage whilst at all damp causes them to spot. Zonals for late bloom should be encouraged by shifting them into larger pots, removing the flowers as they show.

Tuberose after they throw up the flower stems should be assisted with liquid manure, keeping the pots upon a moist bottom, nothing being so injurious to these plants as dryness at the roots after the latter are well formed. They are light-loving plants and should be kept near the glass. A gentle bottom heat, such as that afforded by a hotbed, until the pots are well filled with roots, is requisite, potting in moist soil and not giving any water until growth takes place, then give very liberal supplies and also increased warmth. The keeping them near the glass will secure sturdy plants with well-developed flowers.

Azaleas as they go out of flower should have the seed pods picked off; they are unsightly, and impoverish next season's growth. The plants should be encouraged to make growth by keeping them somewhat warmer and more moist than during the flowering period, syringing twice a day, and affording shade from bright sun. It is a mistake to place them in houses densely shaded by Vines or Peaches, they not making such firm wood nor setting the flower buds so well as in houses with less shade. Similar remarks apply to the Camellia; all they require is to have the fierce rays of the sun broken so as to prevent scorching. Neither class of plants should ever be allowed to want for water at the roots.

Hardwooded plants are very effective for conservatory decoration, and if assigned a light airy situation will suffer no injury from a sojourn there during their blooming season, but they must be removed as soon as they are going off. Pimeleas are the better of slight shade from bright sun, also *Acrophyllum venosum*; indeed the latter does best in an old-fashioned house, but quite well in a light house if not kept too near the glass and slightly shaded. Young stock of hardwooded plants, such as *Aphelexes*, *Boronias*, *Choroemas*, *Croweas*, *Dracophyllums*, *Eriostemons*, *Epacrises*, *Gompholobiums*, *Leschenaultias*, *Polygalas*, *Tremandras*, &c., should be lightly sprinkled overhead every afternoon in bright weather, and the shelf or stage on which they stand should be well damped every evening, also the floors of the house, closing rather early with sun heat, but a chink of air should be left on at night, and additional ventilation should be given early in the morning. Slight shade from hot sun for about four hours will be beneficial; avoid, however, anything like gloom for any length of time, as it only induces weak soft growth which is sure to fall a prey to mildew, which must be destroyed upon its first appearance by being dusted with flowers of sulphur.

FLORIST FLOWERS.

Auriculas.—The time for repotting these is now at hand, for although some defer it until the autumn, the generality of growers pot their plants in May. The compost we use is three parts fibrous loam of the best quality procurable, one part cow manure well decayed, and one part of leaf soil from Beech and Oak leaves. The plants should be well shaken out, the pots cleaned, and great care used in potting. They should then be slightly watered, placed in a frame, and kept close for a few days. The larger leaves will gradually decay, but neither they nor the footstalks of the flowers should be rudely broken off.

Dahlias should now be hardened ready for planting out after the 20th, when we may hope all fear of frosts may be over. *Carnations* and *Picotees*.—Stakes should now be placed to the flowering shoots, whether grown in pots or beds, and the plants kept clear of weeds. Tulips will now be in the south coming full into bloom, and choice collections will be protected by a good awning; indeed without it, it is well-nigh impossible to grow them to perfection.

Ranunculuses.—The beds should be stirred over, covered and top-dressed with decayed manure. This will give them fresh vigour and prevent evaporation. They are fond of moisture, but it is better not to water if it can be avoided.

TRADE CATALOGUES RECEIVED.

James Carter & Co., High Holborn, London.—*Catalogue of New and Choice Plants.*

William Bull, King's Road, Chelsea, London.—*Catalogue of New, Beautiful, and Rare Plants.*

James Dickson & Sons, Newton Nurseries, Chester.—*Catalogue of Bedding, Border, and Store and Greenhouse Plants.*

Stephen Brown, Weston-super-Mare.—*Supplementary Catalogue of Bedding Plants.*

W. E. Rendle, 3, Westminster Chambers, Victoria St., London, S.W.—*Illustrated Catalogue of Glass Structures.*

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

BOOKS (Etc).—The "Orchid Manual" published at this office will suit you, price 2s. 8d. by post free. (*Lincoln*).—Your query is rather indefinite; probably Tanner's "First Principles of Agriculture" would suit you. It is very clearly written, and explains much in a small space.

ADDRESS (G. C.).—Methven & Sons, Nurserymen, Edinburgh.

RAISING APOGONETON DISTACHYON FROM SEED (W. G.).—This lovely aquatic seeds rather freely and soon spreads, covering in a few years a large extent of surface. The seeds vegetate freely when dropped upon loam in a few inches depth of water. We do not know where seeds may be procured. Any of the principal nurserymen could supply plants, which are not expensive, also other hardy aquatic plants. We do not recommend dealers.

WINTER-FLOWERING PLANTS FOR COOL GREENHOUSE (Idem).—By "cool" greenhouse we presume frost is excluded. Plants of easy culture are—*Abutilon* *Boule de Neige*, *Acacia oleifolia* elegans, *A. platytera*, *A. armata*, and *A. Riciana*, *Chorozema cordatum* splendens, *Coronilla glauca*, *Correa* *Brilliant*, *C. speciosa* major, *Cytisus racemosus*, *C. Everestianus*, *Perseveria retusa*, *Epacris* in variety, *Eupatorium riparium*, *Cyclamen persicum* vars., *Primula sinensis* vars., and *Camellias*. Add to these Christmas Roses, *Laurustinus*, early-flowering *Rhododendrons*, *Dentia gracilis*, *Schizostylis coccinea*, *Primulas* denticulata, *nivalis*, *cortusoides* amena, and bulbs, not omitting *Chrysanthemums*, the grandest of autumn-flowering plants. No zonal *Pelargoniums* flower well in a cool greenhouse in winter. They require a minimum temperature of 50° to flower well, and then there is no difficulty in having flowers plentifully, the plants being young, well furnished, and not allowed to flower previously.

CINERARIA FLOWERS DISCOLOURED (Cineraria).—The flowers are discoloured by moisture having rested upon them during the night or for a lengthened period. The only remedy is to prevent water falling upon the flowers, and to admit a little air at night as well as day, with shade from bright sun. It is not unusual for some flowers to be affected while others escape; this applies not only to discoloration by moisture but from over-fumigation with tobacco. Were the plants having injured flowers so placed as to receive drip from the roof?

CHINESE PRIMULAS AFTER FLOWERING (H. S., Killee).—Remove the flowered trusses, and place the plants on ashes in a cold frame or outdoors in a position sheltered from winds and sun at midday. They should be kept supplied with water, and may be shifted into pots a size larger early in July. They will flower again in August and through the autumn, but are not so good as plants raised from seed sown early in the year and well cultivated.

SOWING PRIMROSE SEED (Idem).—Sow in the open air in an east or slightly shaded border at once, making the surface fine and covering the seed lightly with fine soil and keeping it regularly moist. It is not unusual for an *Anemone* to have the leaf below the flower.

VINES UNFRUITFUL (An Irish Subscriber).—The Vines making good growth yet not producing fruit would suggest that the wood has not been well ripened. Immature growth may be caused by a crowded state of the foliage, a deficiency of heat, or the roots having passed into wet soil. We should train the shoots thinly, stop them closely, and keep the atmosphere considerably drier, so as to favour the ripening of the wood. If these means fail the only remedy will be to lift the Vines and bring the roots near the surface. Is the house shaded?

PURCHASING ATRICULAS (W. C.).—In commencing a collection of Auriculas you cannot do better than order the plants at once of some florist who has them to sell, and he will send them as soon as they are ready—probably in June.

ROSE OF SHARON (E. S.).—Both a Lincolnshire vicar and a Lincolnshire gardener inform us that the St. John's Wort (*Hypericum calycinum*) is commonly known in their district as the Rose of Sharon. The seed you have received is possibly of this *Hypericum*; if so, it may be sown at once in light soil in the open air.

BRIARS (C. P.).—The most direct way of obtaining Briars for budding is through some of the nurserymen. If you live in a part of the country where Briars abound in the hedges and woods you could employ labourers who are out of work in the winter to collect them for you. We do not know the prices that are paid.

PEACHES AND GRAPES STONING (Cold).—It is not easy to give such instructions as you require without an object lesson. For a time after the fruit has set it swells regularly, but afterwards the swelling ceases, and for a week or more the fruit is apparently stationary. When swelling again commences, which is plainly perceptible, the stoning is completed. When the Grapes are as large as peas and the Peaches of the size of horsebeans examine them at periods of a few days, and you will not afterwards have any difficulty in detecting the stoning period.

INSECTS ON FUCHSIAS (L. F. O.).—Fumigation will not injure the Grapes unless you apply it too strong to injure the plants. Fumigate moderately two nights in succession, then syringe your plants with a solution of soft soap, about 2 ozs. to the gallon of water, and mix with each gallon half a pint of tobacco water. Apply it at a temperature of 100° and it will not leave any sediment on the foliage. If more convenient dissolve 2 ozs. of Gishurst compound in a gallon of water, and with it syringe the plants. Both mixtures are safe and efficacious.

PLANT FOR SCHOOL FLOWER SHOW (A School Girl).—If you will give us some data to guide us, such as the date of the flower show, the aspect of

your room window, and whether you require a fine-foliated or a flowering plant, we will endeavour to answer your question.

ROSES (South Hants).—The Shah cannot be termed a fragrant Rose: none of the Duke of Edinburgh race are full-scented. Prince Arthur we think is not fragrant; W. Wilson Saunders and John Bright are moderately fragrant, Mrs. Laxton has a peculiar perfume. As a rule, amongst crimson Roses the brighter the colour the less fragrant is the flower. Notwithstanding that the varieties are not fragrant they are yet admirable "garden Roses" in consequence of their excellent colours.

ASPARAGUS (A. A. M.).—Allow the small shoots to remain; it is only by permitting the growth of foliage that stout crowns can be formed for producing still stronger stems another year. The best book for you or your gardener is the "Cottage Gardeners' Dictionary," which you can have from this office free by post on receipt of 1s. 2d.

NAME OF FRUIT (W. Godwin, jun.).—We do not recognise the Apple. It is much grown in Lincolnshire, and is doubtless a good keeper.

NAMES OF PLANTS (H. S.).—3, *Erica Wilmoreana*; 4, *Erica intermedia*. We cannot name plants that are not in flower. (*W. H. W.*).—*Selaginella denticulata*. It no doubt wants repotting into fresh soil. You had better also propagate from the plant by taking off some of the shoots and inserting them into a compost of turfy loam and peat, and placing the pots in a shaded place and sprinkling frequently with tepid water. (*Somerset*).—They are both *Laurus nobilis*, but the one is a male and the other a female plant. That which bears the berries is the female. (*A. B. C.*).—1, *Orobis vernus*; 2, Can you send in flower? *Selaginella* shortly. (*A Mayo Subscriber*).—*Saxifraga granulata*, or a near ally; the *Spiraeas* seem to be rightly named. (*Us Garcon*).—2, *Saxifraga umbrosa*; 3, Apparently an *Andromeda* (*Lencothoe*); the Grass we cannot name from scrap sent. (*S. Morley*).—You must send better specimens; 4, is *Astilbe barbata*, often misnamed *Spiraea japonica*. (*A Boyle*).—*Limnanthes Douglasii*; try *Calla* or *Richardia*. (*Mary Duns*).—1, *Epiphyllum Russellianum*; 2, *Mesembryanthemum inclaudens* (*Bot. Mag.* t. 1863.)

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

MANAGEMENT OF LONG-WOOLLED SHEEP.

THESE breeds of sheep consist chiefly of Cotswolds, Leicesters, and Lincolns; there are, however, others, some of which are of a mixed or cross-bred origin. Either of these breeds of sheep are especially adapted for the home farm owing to their quiet and contented habit of feeding, and they will do well with cattle side by side, as they, like the cattle, will eat and lie down. This is particularly desirable in the home pastures or park lands for several reasons. The long-woolled sheep will in conjunction with cattle not injure the food like many of the short-woolled sheep, the west-country and South Downs especially, as these have a roaming and discontented habit, which in open pasture feeding spoils or renders the grass distasteful to cattle as well as themselves. The short-woolled sheep, too, usually in feeding gather together in flocks, and in consequence are not so ornamental as the quiet long-wools, which lie about and feed singly like the cattle, and are therefore more sightly objects in the park pastures. In order to make sheep profitable as well as ornamental on the home-farm pastures care should be taken to fairly stock the land—that is to say, the numbers of each should be adjusted to the acreage or area of grass land to be fed. It is also necessary to consider whether the sheep are to accompany dairy cows or fattening steers, because we always find it best to run ewes and lambs with the dairy cows, which only require short food, whereas a full bite of grass is necessary for the fattening steers, in which case the hogs or tegs will do well in the same pastures with the cattle, and both usually go to the butchers' market about the same time.

In the event of ewes and lambs being made ready for the butcher together when the lambs are about twelve or fourteen weeks old, it will be necessary to feed them separate from the cattle, and as they usually are allowed a liberal allowance of cake or corn or both they are mostly in such case kept on the arable land. We have often noticed in the western and midland counties that both Cotswolds and Leicesters do well with their lambs upon the clovers and one-year's lea, although the grass is often fed down very close and bare, taking off the young sprouted grass as fast as it makes its appearance. In this way with cake and corn they will come ripe for the market at a very early age. It is, however, a matter for consideration when it is required to fatten the lambs at the earliest age whether the same breed of tups should be used, or whether a tup of another breed should be selected. We have often found that the only point against fat lambs of any pure-bred long-woolled sort is the long and hollow coat, and this

is especially the case when there are a large proportion of twin lambs, and which is commonly the case with the long-woolled tribes, particularly of the Leicesters and Cotswolds. Now this is against their sale as fat lambs, for nothing is so taking in the eye of the butcher in buying lambs as a short close coat, and in order to secure this we recommend that a tup should be used of some short-woolled breed. In preference to a down ram of any sort we would use a well-bred horned Dorset ram. We have often known rams of this breed sent into the midland counties for the purpose of crossing with the Leicesters when the lambs are required for the metropolitan market at the earliest period. The advantage of this cross is, not only that the lambs will come to hand with short firm wool, but the horned Dorset and Somerset stock are noted for the number of twins they propagate. When first we heard of this cross many years ago we imagined that the lambs would come horned like the sire, because many writers when speaking of crossing give the sire credit for being the most impressive on the style of the offspring; but it is a fact that ninety-nine out of every hundred come polled lambs. This is altogether a very singular matter when we consider that the horned ewes when put to down rams for breeding early lambs also come polled in the proportion above named. This matter at first sight may appear to be quite unimportant, but it will be found that horned lambs never find favour in the eyes of the butcher. When this kind of stock is required for park lands it is not necessary to have the lambs to fall much before the grass comes ready for feeding; October will therefore be soon enough for the tup to be turned with ewes, after which it is of consequence to consider the best way of keeping the ewes so as to ensure healthy lambs.

The mode of providing for them will depend to some extent upon the proportion of arable and pasture land of which the farm consists. Where there is a considerable extent of arable land it is well to provide a good breadth of cabbages, for these are certainly preferable to either turnips, Swedes, or mangolds as food for in-lamb ewes, and it is advisable to hold a portion of the wheat eddishes, the clover seeds, and Italian rye grass for feeding during the autumn and winter months, so that the ewes may have daily a portion huddled off and also a portion of cabbages in the same way; field hay must, however, be used with cabbages after the grass is gone. If the fields are some little distance apart so much the better if the ewes are carefully driven by the shepherd. In our own practice we have always found that exercise in this way is favourable towards a healthy fall of lambs; and we must here mention particularly that we never allow a dog to be used by the shepherd, we prefer to have a strong lad instead to assist him. This not only gives better assistance to the shepherd than he can ever have from his dog, but it is at the same time bringing young men forward to take the position of shepherd at a future time, a matter of no slight importance in view of the labour question as it at present exists; for although the labour of the farm in many cases may be done by new implements, yet the duties and requirements of the shepherd cannot be carried out by machinery. Again, where the home farm consists principally of pasture the ewes will not have the advantages of the change of food as upon farms with a due proportion of ploughing land, but must be kept more upon grass, still a portion of the arable should be cropped with cabbage. Ergot is often found in pasture hay, but not so often in field hay, because field hay is usually cut and made before the seed of the grass is formed, but not so with pasture hay; for it being composed of a variety of sorts of grass, some early and some late, it often happens that some sorts are seeded enough to be attacked by the fungus, particularly in moist seasons of low temperature. In order to avoid the formation of ergot it is best, instead of feeding with hay, to carefully preserve grass in portions of the pasture land which may have been fed down bare up to the month of August and upon any dry soil. The grass which will be produced after that time will furnish the very best of food for pregnant ewes. When the tup is turned with the ewes at the time above named the lambing time will not be generally attended with so much risk as when it occurs during the dead of the winter; it will therefore be quite sufficient, where the pastures are at all sheltered, to keep a shifting fold on the driest part of the pasture, and if it is of a south aspect so much the better. It will, however, as it always must be, necessary for the shepherd to give all possible care and attention at lambing time both by night and by day, for although it is reasonable to expect that the worst winter weather will have passed away, yet the usual casualties of the lambing season must be reckoned upon.

The mode of management of the young lambs having been treated of in a former article upon down sheep we will pass on to the period when both ewes and lambs will be strong enough to commence feeding the pastures with such assistance as they may require, according to the object in view, whether of fattening the ewes and lambs together or be retained and kept only in store condition, the lambs being fairly fed with the view of the wether lambs being fattened at eighteen or twenty months old, and the ewe lambs being weaned and pass into the flock to be maintained for future breeding purposes. In either case the lambs will begin to eat before the grass will be entirely sufficient, and to

maintain them in condition with assistance by root-feeding and with artificials such as best American oil cake, bean meal, or cracked peas. Here again we find, after the cabbages are gone, the best food for young lambs is firm and hard white carrots, and when passed twice through the cutter and mixed with finely ground cake and bean meal they will eat such food at the earliest period. Swedes cut in the same way will answer in the absence of carrots, but we do not approve of mangolds for lambs either for fattening or otherwise until a later period and after the lambs are weaned. The weaning of lambs is of some consequence, for when they are removed from the ewes it is difficult to get them to feed properly for some days; we therefore prefer to remove the ewes from the lambs, allowing them to remain on the ground where they have been lately fed; in this way they remain much more contented, being also fed upon their accustomed food.

Having referred to the rearing of fat lambs to be sold early we will now consider the rearing of lambs for stock to be held on in store condition, and sold or kept for fattening as tegs or wether sheep. In breeding lambs to be reared as stock the best plan is to use the down tup for the purpose of crossing with the long-woolled ewes, as this mixture of blood effects a great improvement in the value of the stock by not only making a great weight of mutton at a given age, but by producing it of better quality as compared with the long-woolled breeds. The crossbred animals are therefore more inquired for by the purveyor, who is induced to give a higher price for the animals in the live market, and but little below the value at which pure-bred down sheep are sold. Before concluding the subject we must remark that when it is required to maintain a long-woolled flock in all its purity of blood it is necessary in a great measure to adhere as much as possible to the best type of animal, which matter must always remain a question of selection by the farmer, and having once made a suitable choice of animals adapted to the soil and climate upon which they are to be kept it will be desirable to breed from the same blood. Although this is commonly called in-and-in breeding, yet it is preferable to taking stock for continuing the stock, of which you may know but little or nothing of their origin. It is, however, necessary in purchasing tups or ewes for maintaining the flock to select stock of same origin, but having been reared and fed in a different district; following this plan will give all the advantages of in-and-in breeding under a skilful selection without the disadvantages.

WORK ON THE HOME FARM.

The horses will be employed where the Lent corn is all sown and the land seeded to clover and grass, and in preparing land for mangolds, and drilling as soon as the ground is ready. The season for mangold sowing cannot longer be deferred without some disadvantage, for although extra manure applied will force-on a later-sown crop, yet there is more probability of obtaining full crop when early sown. The preparation of the land for Swedish turnips should now be proceeding as soon as the mangold ground is finished; in fact, it will be going on simultaneously or alternately. Sometimes the work of carting-off couch and weeds may be done on one piece, whilst ploughing, harrowing, &c., may be proceeding on another field, an alternation in the work being sometimes favourable, unless the weather proves very dry, in which case the quicker one sort of work follows on the other the better, because it does not give time for the land to become hard and rough.

Hand labour will now be required in sowing artificial manures on the wheat, Lent corn, or grass, whichever may require it. If nitrate of soda is used a dry day or two is best for it, particularly when salt is mixed with it, but when guano is used it is best to sow it whilst the land is damp and moist, and in order to prevent its driving before the wind moist ashes should be mixed with it. Should the men be driven to the homestead by showery weather, work should be looked out for them under cover: they may prepare and break guano, and put by in bags of 2 cwt. each in readiness for use. It is well for the odd horse when at leisure to bring home to the farm buildings a few loads of sand. It should be soft yellow sand, not sharp white sand. This will be ready for various purposes, amongst others that of mixing with half-inch or ground bones, for we cannot help recommending an old plan, notwithstanding that we can get bone superphosphate ready made for use—that is, to take an equal number of bushels of ground bones and of sand and mix them together, and at the time of mixing to add water until it becomes a mass like mortar; it will absorb a considerable quantity of water, which should be continually added until it runs away freely from the mass. It will then be in a condition to heat and rot the bones in heap, the heap to be made up in a conical form, and covered over about 6 inches thick with more pure sand and beaten down firm with the shovel. At the end of about three or four weeks the bones will have become partially decayed, and the sand will then be of a dark colour, showing that it has absorbed and fixed the ammonia whilst the bones were rotting. In order to reduce all the bones to the desired state of decomposition the heap should be turned once or twice, adding water as before, then make-up the heap again and covering it with another layer of sand. At the end of about a

month the heap will be ready for use, and a capital manure it is, either for drilling with mangold, Swedes, or turnips, and likewise for sowing broadcast upon pasture land. It is, however, especially adapted for drilling to manure the root crops, because the sand being a maiden earth it is well fitted for the rootlets of the infant plants to feed upon, more particularly as the sand is enriched by absorption of manure from the decaying bones; besides which the structure of the bones will be completely broken down and become available as food for plants, in the same way as bone or superphosphate, and better in some respects, as it will contain a considerable quantity of ammonia imbibed by the sand. We have sometimes found that parties use ashes, peat, or sawdust. Anything that will ferment with the bones will answer the purpose of decomposing the bones; but sand is the most useful adjunct, and it must be borne in mind the larger the quantity of bones and sand in the heap the better, because the larger heap will ferment and decompose the bones better than a smaller quantity.

Women will now be employed in weeding, which may be done with an ordinary spud for cutting-up the annuals; but for the strong-rooted weeds such as docks, which now begin to make their appearance, a small pickaxe is best, pointed at one end, and a cutting-edge about 1½ inch wide at the other. By loosening the ground round the roots of the weeds they may be rooted-out entirely, or cut off much below the surface and destroyed. Thus it will be seen that the pickaxe answers the purpose for destroying all kinds of weeds, but the small spud is only useful to destroy annuals. These implements for weeding must be made light and handy for women to use (yet strong enough for the purpose), otherwise the women who have only been used to the light spud will object to use them. The horse-hoeing of peas, beans, wheat, &c., must be done the first dry weather, and it is important that this work should be done whilst the plants are young and before the weeds get very strong. Some farmers object to early hoeing, saying there is nothing to do the weeds are so small, but we consider it so much the better, because if the land is hoed whilst the weeds are in their infancy they are much more easily killed; therefore the first dry weather should not be lost, for in some seasons by waiting the weeds get strong, and if wet weather follows the hoeing many sorts will not die off as required.

PRIZE POULTRY.

THERE seems no limit to the credulity of the British public. In most things we are willing to profit by the experience of our forefathers or neighbours, but when some incredible advantage is offered, or some ware is advertised of a cheapness so startling as to seem contrary to the principles of political economy, then the major part of us refuse to be guided by the experience of others, however disappointing it may have been, and prefer each to buy it for ourselves, and that often at a singularly high price. Were it otherwise the company of the quacks, from the Mesdames Rachel downwards, would be far smaller than it is and meet with far less encouragement. The question of imposition in the abstract is not within our province, but so many practical examples of it in the poultry line have of late come within our notice that we think it incumbent upon us to say something on the subject. Advertising columns are week after week crowded with lists of "prize" poultry and Pigeons for sale of such length that a foreigner might well conclude that poultry showing was the chief occupation of Englishmen, and that the number of our shows must be simply infinite. A large margin must of course be allowed for the ignorance of advertisers, some of whom are probably under the misapprehension that the term "prize poultry" includes any birds of pure or tolerably pure breed. As instances of this *bona fide* ignorance we may quote one or two cases that have happened to ourselves. An advertiser, through a well-known medium for the disposal of all possible and impossible things, offered not long ago, we believe in perfectly good faith, a "splendid prize cock" of a variety which we wanted. We asked for further particulars, and were informed that the bird had never actually been shown, but was considered a "prizetaking" bird, as it came from eggs bought of a lady who originally had her stock from "a lord" who had frequently taken prizes at Birmingham! Again, in distress for broody hens we answered a most promising advertisement from a lady offering them at 5s. each. We naturally inquired how long they had been sitting; the reply was that they were not sitting at all, but were of a kind specially calculated for brooding chickens. Why a China egg should have been offered with each hen did not transpire; perhaps to teach them the act of incubation by the way. Leaving, however, as we said, a large margin for these cases of *bona fide* ignorance, there still remains a large residue of cases in which birds are sold and bought as prize birds which have taken no prizes at all nor are ever likely to take them, besides numbers which have received notices at little local meetings that are no guarantee of their merit and should not enhance their value. We have lately visited the yards of several beginners who wished to start with well-bred birds, but did not feel inclined to give long prices for them. We have actually seen Buff Cochins with long featherless legs, deeply striped neck hackles and lapping combs; Brahmas with five claws, and Dork-

ings with four—all "prize poultry!" Now, as long as there are ready purchasers for such rubbish so long is the market sure to be well supplied with it; we will therefore attempt to give a little advice to that large and daily increasing class of fanciers who wish to obtain well-bred poultry, though not specimens of the most perfect exhibition type.

To begin with, we may remark that a prize card is a very relative honour. There is a difference between shows that can scarcely be appreciated save by those who have had some experience in them. We could without over-refining divide those which are advertised and tolerably well known into at least five classes of merit. The first-prize birds in the lower of the classes of shows would, as a rule, have little chance of a bare commendation at those of the first class. We have often seen small shows where the judge had simply to choose the birds with least glaring faults, even for a cup, and where we would not have taken the highest winners at a gift. Far be it from us to depreciate the use of shows as a valuable means of comparing high-class stock and as giving a stimulus to its cultivation. A notice at a first-class show is a great and generally a reliable guarantee that a bird is a good specimen of a certain distinct type, but purchasers are too apt to think that a prize card wherever obtained gives intrinsic worth to a bird. Doubtless it always does add a certain saleable value, but often unjustly so. Even in the best shows too much value is often placed on position. Judges are not infallible, and so carefully are the more favourite kinds now bred that there is often little to choose between six or eight pens in a class at the Crystal Palace, Oxford, or other great shows. Still we find £10 more readily given for a first-prize winner than £5 for a third, though the few really discriminating purchasers often give far higher sums for even an unnoticed bird than are placed upon the winners. One of the first things to be remembered by a would-be purchaser of high-class poultry is this—the principles of atavism (to use a word of modern coinage), or the return in the produce to the type of their ancestors, are at present very imperfectly understood; still, this much we know, that many generations of breeding to some particular stamp are necessary before we can have any certainty as to the produce. People talk of purity and impurity of breed without considering that these terms are necessarily relative, and without having any idea as to the number of generations of one particular type which they would consider to constitute a pedigree of purity. Those who have attempted to breed on anything like scientific principles well know how very many are required, and how unjust it sometimes is to attribute fraud to those who have sold birds which do not quite reproduce their like. What, however, we specially wish to deduce now from these facts is, that it is far better if possible to buy from yards where it is known that certain varieties have long been carefully bred, even though only faulty specimens from them can be afforded, than to buy veritable prize birds which have been produced in a happy-go-lucky manner. Great harm has been done by the necessity of what is called "introducing fresh blood" being exaggerated. It is true that now and then by a fortunate chance some indiscriminate union of birds from two dissimilar strains has had a good result in the first generation, but generally in the second and third it is an utter failure.

Our first piece of advice, then, to those who wish to get up a good strain of any kind is to eschew these cheap so-called "prize birds," and to go to an old-established yard for stock to start with. We have done this ourselves with several varieties, and have so formed famous strains at little original cost, save that of intelligent and scrupulous care in breeding and accurate noting of pedigrees. For the most part, of course, the yards of those who have long exhibited particular varieties will be those to select from, but we know others who do not show at all and yet have by no means despicable studs long bred with care. Furthermore, when once a particular strain has been chosen we advise the fancier to keep to it. Where it has been carefully kept up there are sure to be several families, and when "fresh blood" is really required a reliable fancier will select birds for a purchaser not too nearly related. In this way a vast amount of disappointment from the produce of raw and ill-judged crosses will be avoided. Certainly a prize bird for 7s. 6d. sounds most tempting, but such bargains are generally dear ones and often spoil the whole produce of a year. We do not for a moment mean to deny that many good and reliable prize birds are advertised and sold.

It not unfrequently happens that a beginner wishes to make his or her *début* at some country show, and for this object tries to get some "certain winners." Our counsel to such is, Go to the most reliable and famous breeders, state exactly the purpose for which you require birds and the time of the show. Prize birds at even a first-class winter show are often utterly unfit for even a local show by the summer. We believe that there are very few breeders of eminence who will not do all in their power to help a beginner. "Perfect birds" which are so frequently asked for at 5s. a head, of course they will not sell for £1 or £2 each, but they will generally describe honestly what they have to spare, and state the faults as well as the excellencies of the birds. It is a great error on the part of beginners to expect to find or even to ask for perfection. The honest seller at once replies that he has

not such birds, and if he had could not sell them save at extravagant prices. The dishonest advertiser offers in reply stock with every conceivable merit for next to nothing. If purchasers would but listen to these hints, and be less sanguine in their expectations and more discriminating in their purchases, we should not hear of so many disappointments, and the trade in spurious "prize poultry" would be appreciably checked.—C.

WHARFEDALE POULTRY, &c., SHOW.

THIS venerable Society held its eightieth Exhibition on the 4th and 5th inst. The first day was devoted to agriculture proper, and the second set apart for dogs, poultry, Pigeons, and Rabbits. The entries were very good throughout, and the quality was likewise very high. The day was fine and the visitors numerous. The pens were those of the Society; they were of wood with wire fronts and moveable tops, and in consequence the birds were very easy to handle.

Game headed the list, the first class being Black Reds. The first cock was a stout well-built bird, sound in feet and in fine order, but the hen a little rusty; second a capital pair; the third best except that the cock's eyes were too light. Brown Reds.—First a good even pair in fine order, and the cup was awarded to them; second good, but the cock a little coarse; the third grand in quality, but small and young, and the cock out of feather. The three following classes contained but few birds, but the single Black Red cocks were good. Single cocks of any other variety.—First a grand old Duckwing, second and third Piles. Single Red Game hens were the best class in the Show, scarcely a bird but what was well deserving of a good position, the winners being Brown Reds. Hens, any other variety.—First a Pile in the pink of bloom, second a fine Duckwing, and third also a Pile. In the large section of poultry—viz., Spanish, Dorkings, &c., the cup was awarded to the pen of Spanish containing the celebrated hen of which there has been so much controversy as to her proper sex, the second being a fine even pair. *Brahmas* were pretty good in both classes, though some of the Light cocks were very yellow. *Dorkings* were excellent, large and good in feet. *Polish*.—First Silver, and second and third Gold. The first-prize Golden-spangles were sent all the way from Cornwall, and were a capital pair. The cup was awarded to Silver-spangles, the hen being superior. Gold-pencils.—First a pen containing one of the neatest cocks we have yet seen, but most of the hens were a little faded. Silvers a moderate lot. Black Hamburgs were about the best of the Hamburgs, and in good bloom throughout. Hen-feathered cocks produced six entries, and we are glad indeed to see this most useful and handsome variety again encouraged; the first was a Silver-spangle, and second and third Silver-pencils. *Game Bantams*.—Black Reds were very good in style, but some of the best a little large. Brown Reds were the best class we have seen of late, the cup for Bantams being awarded to a capital pair, except that the cock was rather short in head. Any other variety.—First and second Duckwings, and third Piles.

Rabbits were a capital entry, the classes averaging fourteen in each, for 15s., 7s. 6d., and 2s. 6d. as prizes. Lops were first; the winner, a Fawn doe, of grand all-round merit, 23½ by 5½ inches; the second a Tortoiseshell, 22½ by 4½ inches; the third a Fawn, 25 by 4½, but not near so good in other points. Angoras were a very even class, but many were very badly mated. The winners were very fine in fur and well shown, though young and not full grown. Silver-Greys were the best class in the Show; the first quite young but of exquisite ticking and silvery, though slightly clouded on the head; the second more even on the head, good throughout, but not as sharp in silvery; the third a large well-silvered doe in capital order. Himalayans were a smaller class, the winners good in points. The Variety class was a good one, almost every one being noticed; first a very rich-coloured Silver Fawn, second Grey Dutch, and third a large Belgian Hare, failing only slightly in ticking.

Pigeons were a nice lot, but in some cases the birds were bad to get at, the doors of the pens being at the back. *Pouters*.—First a Red, and the other winners Blue. The cup for the best Pigeon went to a capital Black Carrier cock. The cup for the best, entered for sale at £6 6s., was again won by the donor, Mr. Horner, no one caring to enter good birds at such a price. In Jacobins Reds were first and third, and Black second. *Dragoons* were a superior class, and more might have been noticed. Almonds won the prizes for Short-faces. *Turbits* a fair lot; first Blue, second Red, and third Silver. Six classes were provided for Antwerps, and these were well filled, showing the popularity of the breed. In the Variety class a Spangle Ice was placed first.

POULTRY.—GAME.—Black Red.—1, J. Fletcher. 2, H. Hick. 3, J. Craven, *etc.* T. Dyson, W. Rudd. *Brown Red*.—Cup and 1, W. Rudd. 2, Weeks and Etheridge. 3, W. A. F. Fenwick. *Duckwing*.—1, W. Rudd. 2, T. Headlam. *Any other colour*.—2, W. & R. Smith. *Red*.—Cock.—1, E. Winwood. 2, J. F. Crowther. 3, H. E. Martin. *Hen*.—1, W. Rudd. 2, W. A. F. Fenwick. 3, D. Clayton. *etc.* W. A. F. Fenwick, W. Rudd. *Any other variety*.—Cock.—1, H. E. Martin. 2, W. Rudd. 3, H. C. Mason. *Hen*.—1, E. Lund. 2, H. Beldon. 3, W. Budd. *etc.* W. Spencer, W. Rudd. **SPANISH**.—Cup and 1, H. Beldon. 2, J. Powell. 3, J. Akeroyd. **COCHINS**.—1, W. Mitchell. 2, R. F. Percival. 3, H. Beldon. *etc.* H. Beldon, J. North. **BRAHMA FOOTRAN**.—*Dark*.—1, T. Beards-

worth. 2, W. Scholefield. 3, H. Beldon. *Light*.—1, H. Beldon. 2, M. Hall. 3, H. W. & H. King. **DORKINGS**.—1, E. Barker. 2 and 3, T. Bridger. **POLANDS**.—1, 2, and 3, H. Beldon. **CREVE-CŒURS**.—1, M. Hall. 2, J. Mackwell. 3, H. Beldon. **HOUDANS**.—1, M. Hall. 2, R. A. Rolster. 3, G. W. Hibbert. **LEG-HORNES**.—1, A. C. Bradbury. 2, J. Moore. 3, F. Bentley. **ANY OTHER VARIETY**.—1 and 2, H. Beldon. 3, C. Atkinson. **HAMBURGS**.—*Gold-spangled*.—1, S. R. Harris. 2, H. Beldon. 3, C. & W. May. *Silver-spangled*.—Cup, 1, and 3, H. Beldon. 2, J. Rawnsley. *Gold-pencilled*.—1, J. Rawnsley. 2 and 3, H. Beldon. *Silver-pencilled*.—1 and 2, H. Beldon. 3, J. Rawnsley. *Black*.—1, H. Beldon. 2, J. Rawnsley. 3, G. Moore. *Hen-feathered*.—Cock.—1, 2, and 3, H. Beldon. **BANTAMS**.—*Black Red*.—Cup and 1, W. F. Entwistle. 2, A. S. Sugden. 3, W. Rudd. *Brown Red*.—Cup and 1, W. F. Entwistle. 2, W. Rudd. 3, J. Fletcher. *Any other colour*.—1, A. S. Sugden. 2, W. F. Entwistle. 3, R. Swales. *Game Cock*.—1, E. Lund. 2, W. Johnson, jun. 3, J. M. Sellers. *Black*.—1, F. Beanland. 2, Metcalfe & Milner. 3, H. Beldon. *Any other variety*.—1, J. F. Crowther. 2, J. Rawnsley. 3, H. W. & H. King. **DUCKS**.—*Rouen*.—1, J. Newton. 2, F. G. S. Rawson. 3, W. Bearpark. *Aylesbury*.—1, J. J. Gunn. 2, S. R. Harris. 3, W. F. Briggs. *Any other variety*.—1, H. B. Smith. 2, J. F. Crowther. 3, Ludlow & Rackham. **SELLING CLASS**.—1, C. Sidgwick. 2, H. Yardley. 3, G. Moore. **GESE**.—1, J. F. Crowther. 2, G. Pounder. 3, C. Atkinson.

PIGEONS.—**POUTERS**.—1, J. W. Robinson. 2, H. R. Tenney. 3, J. Baker. **CARRIERS**.—Cup and 1, J. Baker. 2, J. W. Robinson. 3, H. Yardley. **BABBS**.—Cup and 1, E. Horner. 2, J. Baker. 3, E. Mawson. **JACOBIANS**.—1, E. Horner. 2 and 3, T. Holt. **DRAGOONS**.—1, J. B. Whitehead. 2, J. Baker. 3, R. Woods. **TUMBLERS**.—*Short-faced*.—1, H. Yardley. 2 and 3, J. Baker. *Long-faced*.—1, R. Woods. 2, W. Lund. 3, E. Lund. **PANTALINS**.—1, E. Horner. 2, J. W. Robinson. 3, J. F. Lovelidge. **TURBITES**.—1, S. Dewhurst. 2, T. S. Stephenson. 3, J. Baker. **TRUMPETERS**.—1, J. Baker. 2 and 3, J. W. Robinson. **OWLS**.—*English*.—1, W. Lund. 2, C. Atkinson. 3, J. Baker. *Foreign*.—1, J. Booth. 2, J. Baker. 3, E. Horner. **MAGPIES**.—1, J. Baker. 2, C. Atkinson. 3, R. Woods. **ANTWERPS**.—*Short-faced*.—Cock.—1, J. F. Gowing. 2, S. Wade. 3, V. Ratcliffe. *Hen*.—1, J. F. Gowing. 2, H. Yardley. 3, S. S. Blakey. *Long-faced*.—Cock.—1, E. Lund. 2, J. Booth. 3, S. Wade. *Hen*.—1 and 3, E. Lund. 2, W. Lund. *Medium-faced*.—Cock.—1, V. Ratcliffe. 2, W. S. Edwards. 3, J. H. Bastow. *Hen*.—1, W. S. Edwards. 2, E. Marshall. 3, R. H. Britton. **SWALLOW**.—1, E. Horner. 2, E. Mawson. 3, H. Yardley. **ARCHANGEL**.—1 and 3, A. Bew. 2, R. Woods. **ANY OTHER VARIETY**.—1, T. S. Stephenson. 2, C. Atkinson. 3, H. Yardley. **SELLING CLASS**.—2, E. Lund. 3, H. Yardley. **RABBITS**.—**LONG-EARED**.—1, T. & E. J. Fell. 2, C. Clough. 3, W. T. Millet. **ANGORA**.—1, S. Buckley. 2, A. Atkinson. 3, T. Blackburn. *etc.* W. Hawkeswell, J. Waters, J. Hardcastle, M. Rodgers, T. Jones, H. Lund. **SILVER-GREYS**.—1, J. Firth. 2, T. E. Fell. 3, W. Driver. *etc.* S. Handley (2). A. M. Bell, J. & O. Moses, G. S. Hurton, T. & E. J. Fell. **HIMALAYAN**.—1, T. & E. J. Fell. 2, C. J. Millett. 3, H. E. Gilbert. **ANY OTHER VARIETY**.—1, A. Canty. 3, J. H. Roberts. *etc.* J. & J. Crowther, Miss Hailstone, J. Whitaker, J. Firth, W. T. Millett, T. & E. J. Fell, J. Robertshaw, A. Canty, A. Atkinson. **CATS**.—**ENGLISH**.—*Male*.—1, W. M. Spence. 2, Miss Hailstone. *Female*.—1, E. Horner. 2, R. Mawson. *etc.* E. Clayton, E. Horner.

JUDGES.—*Poultry*: Mr. E. Hutton, Pudsey; Mr. James Dixon, North Park, Clayton, Bradford. *Pigeons*: Mr. F. Esquilant, London. *Rabbits and Cats*: Mr. E. Hutton.

CROSS-BREEDING RABBITS.

I AM a breeder of the Silver-Fawn Rabbit, and have been for years, and the first I ever bred were from Silver-Greys of the purest prize strains that could be obtained, and this leads me to think that the Silver-Fawn is simply a sport from the Silver-Grey in the same manner as a white Blackbird, white Sparrow, white Crow, &c., all these differing in certain respects from their parents—i.e., colour, &c., which is precisely the case with Silver-Fawns, for they agree exactly with the shape, size, colour of eye, &c., of the Silver-Grey, and differ only in the colour of the ground fur, which in the case of the former should be a rich fawn, and the latter a slate blue. "GETA" asserts that the Silver-Fawn is now a distinct variety, and if paired with Silver-Greys would throw them too mealy. This is wrong. Silver-Fawns are not bred together, but are always (to obtain the proper exhibition shade) crossed with Silver-Greys, otherwise they would have the same fault as "GETA" ascribes to the crossing of Silver-Fawns—viz., too much meal.

The best way to breed Silver-Fawns possessing at once richness in fawn and silver ticking (which is essential before a Rabbit of this breed can be put into a show pen) is to put a Silver-Fawn buck to a dark even-shaded Silver-Grey doe, if possible Fawn bred, and amongst the produce will be least 50 per cent. of Silver-Fawns of a rich shade.

"GETA" does not mention a cross from which there might be a variety produced never yet seen in a show pen. That is Silver-Grey Dutch. This might be produced by putting a Black-and-white Dutch buck to a light-shaded Silver-Grey doe, and selecting the best marked young ones and putting them to Silver-Greys. Out of this mixture select the best, and put them to Dutch, and so on, until the breeds were thoroughly intermixed.—EDWARD MCKAY, 5, Station Road, Darlington.

VARIETIES.

As soon as we discover any symptoms of gapes among our chickens we know that there are worms—very small red worms—in their windpipes, and we give them camphor in their drinking vessels strong enough to make quite a taste of the camphor. Then if any get the disease quite badly before we discover it, we force a pill of gum camphor down the throat about the size of a small pea, and the fumes of that dose will kill the worms. No kind of worms can live in camphor.—(*Poultry World*.)

—**BOXES FOR BIRDS' NESTS**.—Some of the Berlin papers report the most favourable results consequent upon the novel introduction, at the suggestion of the respective school boards of different districts of Berlin, of small boxes or caskets destined for the shelter of birds, principally starlings. Koeniggratz and

Neustadt, two school board districts of Berlin, have entered with great zest into this movement. Some 6000 such baskets and boxes for starlings have during the winter been fastened and hung up in every available position in the district of Koeniggratz alone; and as many as 11,862 boxes, each of them now occupied and inhabited by a family of starlings, have been likewise distributed and hung up in the district of Neustadt for the purpose of giving shelter to the birds during the hardness of the season, and preserve their, to horticulture and agriculture, so valuable existence.

— *THE American Cultivator* gives the following good advice on feeding poultry:—Where fowls have a free range it is the most economical to feed them twice a day. The fowls should be let out early in the morning; in fact, if there is no fear of enemies or thieves the hen house had better be left open, so that the birds can come out at will. This they will do at daybreak, and by wandering over the fields secure a large amount of worms and insect food. They should receive their morning meal at a fixed hour, and immediately after breakfast is usually a convenient time. So much depends on the size of the birds that it is impossible to give a precise rule as to the quantity of grain to be given to each. It is obvious a Dorking of 10 lbs. weight and a Game fowl of 4 lbs. would require very different quantities of food. Again, more food is required to keep up the due amount of animal heat in winter than in summer. When a hen is producing eggs she will eat nearly twice the amount of food that she requires at another time; hence the successful poultry breeder will need to observe carefully the requirements of his fowls, and govern himself accordingly. The best rule, both as to quantity and time, is to give the fowls a full meal in the morning, and a second shortly before going to roost. There is one important advantage dependant on having fixed hours of feeding—namely, that the birds soon become accustomed to them, and do not hang about the house door all day long, as they do if irregularly and frequently fed. They consequently obtain a greater amount of food for themselves and are less troublesome than they otherwise would be.

— *MUCH* of the prevailing taste and fancy in Europe for some of the popular cheeses must, says an American writer, be wholly acquired. In some English dairies the leaves of sage, parsley, and other herbs are infused into cheese to give it a green colour. In other dairies part of the curd, when ready for the press, is exposed in a sieve to the air, in order that it may become oxygenated and may render the cheese, into which it is mixed with newly prepared curd, of a diversified colour and of a tendency to run speedily into putridity. In a few dairies rapid putridity is induced by an intermixture of beaten potatoes. In Ross-shire cheeses are for several days buried at the seashore, in order that they may acquire a blue colour and a peculiar taste; while in France a considerable quantity of cheese receives an offensive smell, resembling that of a pigsty, from the intermixture of fenugreek.

— *THE American Cultivator* in alluding to the slow or complex methods of testing milk speaks favourably of Professor Feser's improved lactoscope. This lactoscope consists of a glass tube about 11 inches long by 1½ inch in diameter, except at its closed end, where the diameter is greatly reduced. Attached to the bottom of the inside of the tube at a fixed distance from its sides is a short white porcelain rod, on which several black lines are enamelled. The tube itself is graduated in cubic centimetres (0.893 inch), and also bears a scale registering the per-centage of fat contained in the milk under examination. To find this a small quantity—about four cubic centimetres (a cube of about 1½ inch)—of the milk, which must previously be thoroughly stirred up, is introduced into the tube, while water is added little by little till its opacity is so reduced that the black lines on the rod become visible. By reference to one set of graduated marks on the tube it may be ascertained how much water has been required, while the other records the corresponding per-centage of cream present in the samples. The richer a milk is the more water will it require for the completion of the test, while the more it has previously been watered or deprived of its cream the less additional water will be needed to bring the black marks in view.

A STEP IN ADVANCE.

"J. R.," who has been a bee-keeper and reader of the *Journal of Horticulture* for many years, wishes to replace his old straw hive with one that would be profitable and simple to work at moderate expense, and would be happy to adopt any suggestion likely to be a step in advance of the old straw hive. Our correspondent is not alone in wishing to get a step in advance of existing hives and practices, for that is what many apirians are aiming at and making great efforts to reach. "J. R." must have seen in this Journal's pages recommendations of many kinds of hives and pretty full descriptions of them.

The bar-frame hive has been for many years strongly recommended by many bee-keepers, and the mode of working it has been fully explained; and all this may be said of the Stewarton hive. A good hive of either the Stewarton or bar-frame school costs between 20s. and 80s. We recommend our correspondent to

try both hives, and thus find out which is the most profitable and simple to work. Of these two hives we should prefer the Stewarton for several reasons. It is better adapted for supering, ventilation, and enlargement, more natural to the bees, and more easily and successfully worked by the bee-master. I think it is "a step in advance" of the bar-frame hive; and it appears to me that the bee-keepers of the Stewarton school have greater confidence in their hive and system of management than the bar-frame school have in theirs, and we cannot help attaching some importance to this confidence. We read of no efforts being made to improve the Stewarton hive, whereas almost every advanced bee-keeper of the bar-frame school is trying to improve their hives or to remove difficulties and drawbacks in their management.

One gentleman in trying to improve the hive has united, or fancied he has united, both systems in a pretty and rather expensive hive called "the Carr-Stewarton," which, in our humble opinion, is not a step in advance of either of the hives. I commend the principle or mode of managing the Stewarton hive to the consideration of the bar-frame school. The bar-frame hive is not made or meant for enlargement by eking or additions, and this in the eye of practical management is an evident and serious defect; but doubtless our friends of that school, who are looking ahead and seeking improvement, will strike on some idea that will be a step in advance of their present practice. If we were working bar-framers we would use two hives in one, by removing the crown board of the bottom hive and placing the other over it.

One word more in answer to our correspondent's letter, which says that in order "to get a little honey from straw hives we have to call to our aid fire and brimstone." I am sorry to learn that he resorts to such practices, for hundreds of poor cottagers and many ladies of position can take honey from straw hives without the use of fire and brimstone. Having taken honey for fifty years from straw hives without the destruction of bees, and having taught hundreds if not thousands of bee-keepers to do the same successfully, our friend will excuse me if I venture to tell him that if he cannot handle bees in straw hives and take honey from them without fire and brimstone the probability is great that he will be in the same fix and difficulty when he shall have adopted another kind of hive. Both skill and courage are necessary in managing bees, and without these a change of hive or system of management will not help us much.—A. PETTIGREW.

SWARMING VERSUS NON-SWARMING.

It afforded me pleasure to find your correspondent "B. & W." had accepted my remarks under the above heading in the same fraternal spirit as they were tendered; true it is we travel the same road, my sole aim being to show that that road leads on many stages beyond natural swarming. The apirians readers of this Journal are much indebted to your able contributor for so clearly demonstrating the superior advantages of wooden hives, and aiding to remove the antiquated prejudice that bees can only be successfully kept by "the old skep fashion," which as a swaddling band has too long kept apiculture bound in its infancy. Had he but further taught that the inconvenience and loss of time to both bees and their keepers by natural swarming, or as part and parcel of the straw-skep system, from which those keeping their bees in boxes were happily relieved. As bearing directly on the point at issue, I may be permitted to quote verbatim from a quaint old author. Dr. Warder, in his "True Amazons," writing more than 150 years ago (1726), says—"Thus having given directions how to manage your bees in straw hives, which I was willing to do (because most of the people of England will never attain to the keeping of them in boxes), for two reasons. First, Because 'tis a hard thing to put them out of their old road, which every old woman thinks she understands; and secondly because it is a more changeable way than the other, and therefore they cannot attain thereunto."

"I shall now go on with my design in teaching the way to keep bees in boxes or colonies, which is more pleasant and profitable than the other, and more merciful, because in this way which we are about to treat of we kill no bees, yet have great quantities of honey."

The non-swarming system, or that of keeping bees in colonies, is by no means a modern idea in these northern regions, for it is recorded more than two hundred years ago in the "Philosophical Transactions" of Gresham College with regard to the octagon hive—"A bee hive useful to prevent swarming, and used with success in Scotland." Its history in the south is interesting, the invention being attributed by Hartlib to the Rev. W. Mew, minister of Eastington, Gloucestershire, so far back as 1653. The afterwards celebrated Sir Christopher Wren, then a young man of twenty-one, had turned his attention to its improvement, first recommending in a letter the following year the doubling of swarms to stock it. Twenty-two years after the invention seems to have been basely pirated by John Gedde, who alleges to have then obtained a patent from Charles II., styling himself as "Gent. Inventor;" while Moses Rusden, the apothecary of Bowling Alley, who sold licenses to use the hive, confesses in his book published in 1687 that he had just seen the octagon hive in possession of Dr. Wilkins

Bishop of Chester! Subsequent writers' description show the hive of Mew little altered from the first.

So far as I have been able to trace, an Ayrshire man, Robert Kerr, cabinet maker, Stewarton, a keen bee-keeper, and at the same time a most ingenious mechanic, about the year 1819 revolutionised the octagon hive, now known as the Stewarton, by closing up the large square central communication and clothing each top with $1\frac{1}{4}$ -inch fixed bars and moveable slides between working in grooves therein, which materially facilitated communication from box to box. He, too, introduced the separate honey-compartmental arrangement, by which the pure virgin nectar was stored in a series of shallow supers; free communication between each of those by the same $1\frac{1}{4}$ -inch fixed bars and slides, and the admission of the honey gatherers solely by the end spaces, was a most invaluable part of his plan, thereby circumscribing the movement of the queen and her attendant train of nurses and pollen collectors to the central brood-bed. When first that hive came into my possession some twenty years ago, I tried to further improve it by increasing the depth of the breeding boxes, removing the broad $1\frac{1}{4}$ -inch bars and substituting those $1\frac{1}{2}$ wide or $1\frac{1}{4}$ inch from centre to centre, so that I might have the combs with guide built perfectly straight, and each attached to but one bar, and further on substituted frames for bars, so as to make every comb moveable and interchangeable from hive to hive, coming up to your correspondent's Ne Plus Ultra, a hive expandable with the season and of easy contraction at its close; but I overlook "B. & W.'s" stipulation was expandable in "every direction." He says, "Such a hive has yet to be invented, if, indeed, it be within reach of the possible." A hive exactly answering his description combining the storifying and collateral systems, I invented and not a little proudly wrought in novitiate days. When my central stock, or Pavilion of Nature, as styled by Nutt, got crowded, I simultaneously opened communication with super and end box; but the heated atmosphere would ascend, and with it went my little favourites to take possession, leaving my well-ventilated end apartments utterly untenanted. Feeling annoyed at their seeming perverseness, I would shut them out, the super forcing them as it were into the side compartments; to my surprise found their first act was to propolis up the perforations in the ventilating tubes therein. I thus saw the absurdity of Nutt's theory, and taking the hint have ever since carefully wrapped up all supers with warm woollens with the best results. From experiments with this hive became thoroughly convinced that bees will extend their works much more readily in an upward or downward direction than laterally.

Your correspondent's lack of success with the non-swarming system I have no doubt arose, in common with many others, from the want of a hive wherein a due proportion of breeding and storing space could readily be maintained. We storifiers never expect to find honey in nadirs, that being simply an extension of breeding room, but by the honey gatherers bred therein a large augmentation of that nectar in the supers.—A RENFREWSHIRE BEE-KEEPER.

FEEDING BEES.

I SHOULD be glad to know whether you really agree with the suggestion that lately appeared in your columns for feeding bees on barleysugar. I have kept bees with more or less success since 1858, but I have not been able to devote sufficient time to the work to enable me to render reliable notes on the subject. I have always considered the insect as unable to assimilate solid food; therefore I presume if bees can eat barleysugar it must first have become liquid from the moisture of the hive (and this is not a nice idea), or the bees must have had the extra work of carrying water to liquefy it, and all such extra work is labour thrown away. As far as the mere fact of feeding the plan has the merit of simplicity, but I fear that if it is a fact that bees can thrive upon barleysugar we shall shortly have a multiplicity of nostrums, such as sugarcandy, hardbake, toffee, bulls'-eyes, &c. A simple plan to be used with a minimum of trouble is doubtless a great thing, and any of these simple products would be preferable to the syrup recommended by Dr. Bevan in his treatise on the honey bee published in 1838, where on page 206 appears the following recipe, which seems to me to be a mild imitation of the contents of the witches' cauldron in Macbeth:—"A pound of coarse brown sugar and three-quarters of a pint of ale or sweetwort, boiled to the consistence of a syrup, to which should be added a teaspoonful of table salt." For the purpose of forming a closer imitation of honey, by increasing the pungency of the compound, Mr. Golding combines with his syrup a portion of wine and rum! This recipe follows:—"Sugar, 1lb.; honey, a quarter of a pound; salt, a teaspoonful; beer of moderate age, one pint. Boil for a minute, and as the syrup cools add to it half a glass of wine and a tablespoonful of rum!"

I should be glad to hear your comments on the subject; meanwhile I will state for the benefit of brother apiarians the composition of the syrup that I use, and which is, I am sure, grateful to the bees, as I have the greatest difficulty in excluding them from my laboratory, which is a dark room in a retired corner of the house, but into which they persistently find their way in

search of the glass measures which have been used in the manufacture. I use only filtered rain water, to every pint of which I add about three-quarters of a pound of loaf sugar. When dissolved I add to each two quarts of the syrup, 8 ozs. of barleysugar, and a large tablespoonful of glucose. The latter substance was originally added only for autumnal feeding, as it has the property of preventing sugar from crystallising, but of late years I have added it indiscriminately, as I believe it is very acceptable to the bees.—C. M. MAJOR.

[We hope other apiarians will send us a detail of their experience on this practice.—EDS.]

OUR LETTER BOX.

PIGEONS (*Fancier*).—If your neighbour shoots the Pigeons he can be made to pay their value by suing him in the County Court.

A KILKENNY BEE-KEEPER.—A correspondent wishes to write to him.

COMBS IN HIVES (*W. B. Tate*).—If the combs of the hives in which the bees died during the winter are sweet and were built last year by swarms, they will be of advantage to the swarms that may be put amongst them this season; but if they are the combs of stock hives last year swarms will do better in empty hives than amongst them. A few pounds of sugar given to swarms enable them to build combs rapidly on being hived.

TIME FOR ARTIFICIAL SWARMING (*Tom Tower*).—Your hive in ordinary weather will be ready for swarming about three weeks after the hive shall be filled or nearly filled with combs. If the combs which were cut out last year were outside the brood ones and not large pieces the hive may be ready to swarm sooner, but the usual time of swarming is three weeks after hives are full of combs and brood from side to side.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. $51^{\circ} 32' 40''$ N.; Long. $0^{\circ} 8' 0''$ W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1878.	May.	Baromet- er at 3 and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		In. On grass.	
			Dry.	Wet.			Max.	Min.	In sun.			
We. 1		Inches.	deg.	deg.	S.	deg.	deg.	deg.	deg.	deg.	In.	
Th. 2		29.629	56.3	54.3	S.	53.0	67.7	53.2	105.9	51.0	0.100	
Fri. 3		29.683	56.0	53.7	W.	53.2	68.3	49.4	105.0	44.0	—	
Sat. 4		29.626	58.0	54.7	S.W.	54.0	68.0	51.0	102.1	43.2	—	
Sun. 5		30.073	56.3	51.0	W.	53.5	67.3	44.6	119.9	39.7	—	
Mon. 6		30.075	60.6	52.6	E.	54.3	67.6	43.0	104.0	41.4	—	
Tu. 7		29.715	60.6	55.3	E.	53.9	68.7	46.6	98.8	43.0	0.080	
		29.681	62.7	57.0	N.W.	55.0	70.6	55.3	117.0	54.2	1.705	
Means		29.669	58.6	54.1		53.8	68.0	49.0	106.9	45.5	1.285	

REMARKS.

1st.—Heavy showers in morning between 9 and 10 A.M.; dull and heavy all day, slight shower in afternoon, very close in evening with thunder and lightning, beautifully clear and bright night.

2nd.—Fine warm day, but rather cloudy.

3rd.—Fine day, though occasionally very overcast; very slight shower in evening.

4th.—Fine morning, rather cloudy afternoon.

5th.—Rather hazy morning, but bright afternoon and evening.

6th.—Somewhat dull and overcast day; shower in the evening about 10 A.M.

7th.—Fine bright morning, but clouds began to gather in the afternoon, and it looked rather threatening for some time. Rain began about 5.10, and in half an hour 0.85 had fallen; the rain then abated somewhat, but continued almost without intermission till 9 A.M. on the 8th, by which time the large amount of 1.705 had fallen.

The weather during the week was much warmer, the mean temperature being 5° above last week, and on the whole fine though rather cloudy and often close and oppressive.—G. J. SYMONS.

COVENT GARDEN MARKET.—MAY 8.

TRADE is somewhat improved, but with increased supplies prices remain much the same with the exception of early fruit, which are generally lower.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 6 to 6 0	Melons.....	each	6 0 to 12 0
Apricots.....	dozen	0 0 0 0	Nectarines....	dozen	0 0 0 0
Cherries.....	½ lb	0 0 0 0	Oranges.....	½ 100	3 0 to 10 0
Chestnuts.....	bushel	10 0 30 0	Peaches.....	dozen	12 0 30 0
Currants.....	½ sieve	0 0 0 0	Pears, kitchen.	dozen	1 0 5 0
Figs.....	dozen	12 0 30 0	Pears, dessert.	dozen	3 0 12 0
Grapes.....	½ lb.	0 9 1 0	Pine Apples..	½ lb.	1 6 5 0
Gooseberries..	quart	1 0 2 0	Piums.....	½ sieve	0 0 0 0
Grapes, hothouse	½ lb	4 0 12 0	Raspberries..	½ lb.	0 0 0 0
Lemons.....	½ 100	6 0 10 0	Strawberries..	½ lb.	4 0 16 0
			Walnuts.....	bushel	5 0 8 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms....	pottle	1 6 to 2 0
Beans, Kidney forced	½ 100	1 0 2 0	Mustard & Cress	punnet	0 2 0 4
Beet, Red.....	dozen	1 6 3 0	Onions.....	bushel	2 6 3 0
Broccoli.....	bundle	0 9 1 6	Pickling.....	quart	0 4 0 6
Brussels Sprouts	½ sieve	2 6 0 0	Parsley.....	doz. bunches	3 0 0 0
Cabbage.....	dozen	1 0 2 0	Parsnips.....	dozen	0 0 0 0
Carrots, new....	bunch	1 6 2 0	Potatoes, frame	½ lb	0 6 1 3
Capiculus.....	½ 100	1 6 2 0	Potatoes.....	bushel	3 6 7 0
Cauliflowers....	dozen	3 0 6 0	Kidney.....	bushel	5 0 7 0
Celery.....	bundle	1 6 2 0	Radishes....	doz. bunches	1 0 1 0
Coleworts.....	doz. bunches	2 0 4 0	Rhubarb.....	bundle	0 6 0 9
Cucumbers.....	each	0 6 1 0	Salsify.....	bundle	0 9 1 0
Endive.....	dozen	1 0 2 0	Scorzonera....	bundle	1 0 0 0
Fennel.....	bunch	0 3 0 0	Seakale.....	basket	1 6 2 6
Garlic.....	½ lb.	0 6 0 0	Shallots.....	½ lb	0 3 0 0
Herbs.....	bunch	0 3 0 0	Spinach.....	bushel	2 6 4 6
Lettuce.....	dozen	1 0 2 0	Turnips, new..	bunch	1 6 2 0
Leeks.....	bunch	0 2 0 4	Veg. Marrows..	each	0 0 0 0

WEEKLY CALENDAR.

Day of Month	Day of Week	MAY 16—22, 1878.	Average Temperature near London.			Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.		Clock before Sun.		Day of Year
			Day.	Night.	Mean.	h.	m.	h.	m.	h.	m.	h.	m.	Days.	m.	a.		
16	TH	Royal Society at 8.30 P.M.	66.1	45.0	54.6	4	9	7	44	8	30	3	18	●	3	51	136	
17	F	Royal Institution at 8 P.M.	65.5	41.7	53.6	4	7	7	45	9	49	3	52	15	3	49	137	
18	S		65.3	42.7	54.0	4	6	7	47	10	51	4	39	16	3	48	138	
19	SUN	4 SUNDAY AFTER EASTER.	66.2	43.1	54.6	4	4	7	48	11	36	5	41	17	3	45	139	
20	M	Victoria Institute (Anniversary) at 8 P.M.	66.3	43.3	54.3	4	3	7	49	morn.	6	53	18	3	43	140		
21	TU	Royal Horticultural Society—Fruit and Floral Com.	66.3	44.5	55.4	4	3	7	51	0	8	8	10	19	3	39	141	
22	W	Royal Bot. Soc.—Summer Show. [mittes at 11 A.M.	65.5	43.1	54.3	4	1	7	52	0	30	9	25	20	3	35	142	

From observations taken near London during forty-three years, the average day temperature of the week is 65.8°; and its night temperature 43.0°.

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A JAPANESE GARDEN—A SUGGESTION.

THROUGH a vista of years my mind is looking backward to a secluded spot enriched with many of Flora's richest treasures, and known by the somewhat vague appellation of "The American Garden," derived, no doubt, from the fact that the majority of its trees and shrubs were natives of America. Circular in outline it was bisected by a broad gravel path leading from and to other lawns and gardens, for it was situated in the very heart of shrubberies some forty acres in extent. Advantage had been taken of this division of the garden to impart a distinct appearance to each part, and yet this was so well done that there was an air of unity and connection in the whole of it. On one hand was a semicircular space rising gently from the path to its boundary, a wall, very high along the central part and sweeping downwards in bold curves to a pier at each end of the curved part of the semicircle. Magnificent old *Magnolia grandiflora*s had grown right up to the top of the wall, and most seasons produced hundreds of their large white flowers rich with a perfume that seemed to cloy the air with its sweetness. Many fine old climbers were there too; some of them I cannot recall to memory, but I shall never forget an immense spreading *Chimonanthus fragrans* which we used to think so wonderful with its winter crop of curious flowers, clusters sweet as a Hyacinth. A *Wistaria sinensis*, "old Harry's" pride, running all along the top of the wall and down among the other creepers; an *Abutilon striatum* that went on year after year bearing its curiously veined pendant bell-flowers, and passed through many winters in perfect immunity from frost; a *Solfaterre* Rose had grown over the top of the wall; and a *Bignonia radicans* twining along the top of one of the lower curves of the wall and bearing aloft clusters of its bold orange-coloured trumpet flowers, were some of the favourites which still haunt my memory.

Along the foot of the wall ran a border, and the remainder of the garden was laid out in beds and grass walks. In the beds were all sorts of rarities—*Calycanthus floridus*, with its curious aromatic brown flowers; bright pink patches of *Erica carnea*, fragrant *Daphnes*—it was here that I first learned to know and value the sweet green-flowered *D. pontica*, and the equally fragrant pink-flowered trailer *D. cneorum*—*Azaleas*, *Ledums*, *Roses*, *Yuccas*, all mingled with perennial flowers and bulbs.

The other half of the garden was a lawn shut in by a belt of *Rhododendrons* and other shrubs, with sheltering clumps of lofty *Fir* trees, mingled with *Oaks* behind. About the lawn was dispersed a collection of deciduous *Magnolias* and a *Salisburia adiantifolia*, all of them so large as even then to be regarded as trees. Some of these *Magnolias* remain still; they have braved the storms of probably fifty winters, and are 40 feet high. All the other trees, &c., referred to have been swept away by the hands of "improvers." My object in dwelling upon this old garden is not, however, to indulge in vain regrets, but to convey to the reader some faint idea of its form and beauty

as an inducement to act upon the suggestion now to be made.

Considering the rich store of the Japanese flora now in our hands a novel feature might be added to all gardens affording the requisite space by making a Japanese garden—that is to say, a garden containing only plants and trees introduced from Japan. That such a garden would be attractive there can be no doubt, for everything brought from that country has peculiar points of beauty either in habit of growth, form, or colour of foliage or blossom. Take, for example, the Conifers: what can be more curious and ornamental in their way than the *Retinosporas*? Then there is the Umbrella Pine (*Sciadopitys verticillata*), which I have heard termed the most ornamental of all Pinuses; certainly it presents a very distinct and striking appearance in such examples as have come under my notice. *Thuja borealis* is one of our very best Conifers, and *T. dolabrata* is full of promise. There are also four or five varieties of *Abies*—notably *A. Tsuga Hanburyana*, the Japanese Hemlock Spruce; and who does not admire *Cryptomeria elegans*? We have also *C. japonica*, *Juniperus japonica*, a *Larch* (*Larix leptolepis*), a *Cephalotaxus*, the more common but very peculiar *Taxus adpressa*, *Thuja falcata Standishii*, and the well-known *Salisburia adiantifolia*.

Among shrubs and trees what a host of beauties do we find! One is quite at a loss which to select—perhaps the Maples should come first, as they are just now so beautiful in their vernal clothing of fresh young foliage. The one which I regard as most ornamental bears the wonderful name of *Acer polymorphum atro-purpureum*. One planted three years ago has made annual growths of about a foot; its elegant palmate foliage is now of a rich crimson colour tinged with purple, and nothing can be more charming than the effect of sunlight upon the brilliant mass of foliage. The others, all worthy of a place, are *A. polymorphum*, *A. p. roseum marginatum*, *A. p. sanguineum*, *A. p. dissectum*, *A. p. palmatifidum*, and *A. p. reticulatum*.

With the dwarf lovely white-flowered *Deutzia gracilis* all are familiar, and there are some *Hydrangeas*, of which perhaps *Otoko* with its immense heads of pale rosy flowers, and *hortensis variegata*, may be known pretty generally; but the charming *H. paniculata grandiflora*, with white pink-blotched flowers, is not so well known. Then there is the early-flowering *Azalea mollis*, with some twenty varieties; the pretty pink evergreen *Azalea amena*. A *Rose* which is so very Japanese in being different to all other *Roses* is named *Rosa rugosa Regeliana*. The shoots are thickly set with small spines, and have a dense clothing of deep green foliage, bearing numerous flowers, which are single in large clusters of a bright crimson colour, and are followed by a crop of bright red berries. I first saw it growing in Messrs. Wood's nursery near Uckfield, and I regard it as an ornamental shrub of much beauty. We have also a Japanese *Laurustinus* (*Viburnum Sieboldii*) which I have planted for the sake of its bold glossy foliage; *Skimmia japonica*, and its varieties fragrans, *laurifolia*, *oblata*, and *ovata*; *Raphiolepis ovata*, an evergreen with spikes of white flowers; the popular and useful *Ligustrum japonicum*, *L. coriaceum*, valuable for clothing pillars with

its stout glossy foliage, and *L. glabrum aureo-variegatum*; the singular *Elaeagnus longipes*, said to be very ornamental, with orange berries, but as I only planted it last season I cannot say more than it has a curious appearance. Then come all the *Aucubas*, *Mahonia japonica*, *Ilex japonica* and its three varieties; a *Daphne*, a *Bamboo*, a *Palm* (*Chamaerops Fortunei*) which has proved quite hardy in the south, growing so freely that the noble specimen at Lamorran is upwards of 15 feet high; an *Elm* (*Ulmus Kaki*), an *Oak* (*Quercus glabra*), the evergreen *Aralia japonica*, with large handsome foliage, and which has already attained the dimensions of a dwarf tree in Cornwall, and many others which I need not enumerate, enough having been named for my present object.

For walls we have several *Clematises*, the familiar *Cydonia japonica* with its rich red flowers; the best of all Honeysuckles, *Lonicera flexuosa*; the pretty variegated *L. aureo-reticulata*; the evergreen *Photinias*, *Ampelopsis japonica*, the curious *Akebia quinata*, often termed a greenhouse climber, but quite hardy in the south; *Cissus japonica*, and *Wistaria macrobotrys*.

For borders plenty of *Lilies* of the auratum and tigrinum species, the scarlet-flowered *Lychnis speciosa*, *Iris Kämpferi*, *Eulalia japonica* for both borders and lawn clumps, with stems 5 feet high, slender variegated foliage, and panicles of pink flowers. The stately *Bocconia japonica* is also suitable for either purpose. *Primula japonica* is now well known, and one might continue the list with the yellow *Hemerocallis*, *Rodgersia*, *Polygonatum*, &c., but I refrain, and conclude with the wish that cause has been shown why more particular attention should be given to the collection and culture of what, may fairly be termed Japanese beauties.—EDW. LUCKHURST.

VEGETABLE CULTURE.

CHAP. XVIII.—VEGETABLE MARROWS.

THE Vegetable Marrow is a native of India. It is very useful and not difficult to cultivate. Being a tender annual it can only be grown in the open air throughout the best part of the summer and autumn. As a rule it may be turned out with bedding plants about the third week in May, and it will remain healthy in autumn until about the time the Dahlias are cut down by the frost. In the north we have never found it safe to plant out Marrows until the first week in June, but we have planted them two weeks earlier than this in the south. The plants should not be less than a foot in height when they are planted out, and if they are longer all the better. They are very easily raised from seed, which should be sown about a month before the plants are wanted for planting out. The soil used should be very rich. A mixture of half horse dung and half loam suits well in which to sow the seed, which may either be sown singly in 3-inch or 4-inch pots, or five or six seeds may be placed in a larger pot. When placed in a bottom heat of about 75° it germinates quickly, but at the same time healthy young plants are soon formed in any ordinary house or even cold frame during April and May. The plants from seed sown singly in 3-inch pots should be shifted into 8-inch pots as soon as they are 8 or 10 inches high. Those sown together in one pot must be potted off and be treated in the same way. Where there is no convenience for raising plants under glass the seed will germinate freely if sown in the open soil after the middle of May. When raised under cover the plants should always be kept close to the glass, as it spoils them to become drawn up weakly. Ten or twelve days before planting out they should be freely exposed to the air night and day, and if possible they should be protected with hand-lights for a fortnight after they are planted out, but these are not indispensable.

Those having large dung beds generally plant their Marrows out on them, and they answer the purpose capably. Where there are no dung heaps a quantity of newly cut grass litter, old Broccoli leaves and stumps, and fermenting material of any description may be thrown together, mixed and made into a firm heap on which to grow them. The heat which rises from this pushes the plants on rapidly. Heaps of this kind should be covered a foot in depth with rich soil in which the plants must be planted. They may also be planted in good soil without any heat underneath, or on the top of old hotbeds which may have been used for propagation or for the raising of plants of early vegetables in spring. When once they have begun growing they go along rapidly, and the points should be taken out of all the shoots that are inclined to straggle. All small shoots with no fruit on them should also be removed. This is about all the training they require. In dry weather

they should be copiously watered. When the fruit is shy in setting it is well to impregnate the female blooms with pollen from the male flowers. All fruit should be cut before it assumes a yellow ripe-looking appearance, as the supply can only be kept up by giving the small fruits a fair chance at first. Vegetable Marrows are much grown in some districts by cottagers for exhibition; and it is gratifying to observe that some seedsmen are inclined to encourage this, as Messrs. J. C. Wheeler & Sons of Gloucester not only supply Marrow seed gratuitously to cottager exhibitors at our local show, but offer handsome prizes for the produce as well.

Long White and Moore's Vegetable Cream are two of the best to grow for all purposes. The fruit of the Custard Marrow is prized at the table for its peculiar shape.—A KITCHEN GARDENER.

CULTURE OF DOUBLE PRIMULAS.

FEW plants are more useful than double Primulas, and more especially as they bloom during the duller part of the year, and no plants can be more valuable for cutting. The rosette-like flowers not only last for a lengthened period whilst in a cut state, but they "make-up" well in bouquets and associate well in vases with other flowers. They are consequently much sought after by bouquetists and decorative florists. A great advance has of late years been effected in the raising of new varieties, and the flowers are larger and the colours more varied than formerly.

The best of the double varieties can only be propagated by cuttings. Some growers find some difficulty in striking the cuttings, or these plants would be more largely grown. It is not advisable to divide the plants every year if the cultivator's aim is to have large specimens, but it is desirable to strike cuttings every year so as to provide a stock of healthy young plants. The cuttings should be selected from plants that have made long growths and have become "leggy." After they have ceased blooming and have again started freely into growth the side shoots or the divisions should be taken off with a sharp knife; a heel should be secured to each cutting. Place them singly in small 60-sized pots in some light sandy soil, securing the cuttings if they are large to small sticks to keep them firm. Plunge the pots in a brisk heat, but do not keep the soil or atmosphere too moist, or the cuttings will damp off. When they are rooted remove them from the propagating pit, and when well established repot into large 60-pots in a compost of two parts of light turfy loam, one of leaf soil, and a little very much decayed cow dung and silver sand. Care must be taken to have the pots well drained, as the plants very much dislike stagnation at the root, and when potting it is necessary to keep the collar of the plant well up. After potting keep them in an intermediate temperature with an abundance of air circulating about them. When they are well rooted inure them to a cooler atmosphere (a cold frame will suit them admirably), and by the end of July they will be ready for shifting into a size larger pot. About the end of August they must be removed to a warm and airy position in an intermediate house, where they will bloom freely. Particular care must be exercised in the watering during the winter months, as the roots are very tender. After they have finished blooming, those that will not be required for propagating purposes should be repotted into larger pots, keeping them rather close and warm until they are established, when more air must be given and the plants be treated as during the preceding season.—A SOUTHERN GROWER.

SYRINGING VINES.

I AM more than ever a convert to the non-syringing process, at all events where Vines are planted outside; but for Vines planted inside it is possible that syringing may be an advantage, but I doubt it. I have just been reading an article on Vines. It says, "Syringe to prevent red spider;" it should have been, "Syringe to produce flabby growth, and then red spider will come." I have always found unsyringed Vines to have foliage of a stronger texture and more free from red spider than Vines grown in much heat and freely syringed. I am acquainted with Vines which have been excessively syringed for twenty years, and the crops have always been miserable. I am firmly convinced that the undue use of the syringe has greatly contributed to this unfortunate result. The more experience I gain the more strongly I am convinced that syringing is one of the greatest mistakes in Grape-growing. The Vines under my

charge have been bearing heavily for a quarter of a century, and this year the crop is finer than ever. They are never syringed.—W. W. B.

EXPERIMENTS IN ROSE CULTURE.

YOUR readers might perchance be interested in a brief account of a few experiments I have carried out in the cultivation of several classes of plants. My object in view was to grow plants on scientific principles, so as to obtain if possible perfect development. The first essential was the provision of the requisite elements for the construction of the plant, resting on the theory of Liebig that the neutral salts must be provided for the roots, and that the carbon required would be obtained from the air by the action of light.

My first process on the Rose was by incineration and analysis to ascertain the neutral salts and their relative amounts. The results on practical application were various—great stimulation in certain cases, but in most gradual sickening and death of the plant. A careful examination of the soil showed that with the addition of my neutral salts to those already in the earth, the ratio of certain elements had been given too great a predominance, and had acted as a poison. The conclusion I arrived at being that the theory was sound; but as it required a quantitative analysis of each spadeful of earth, it was practically useless for my greenhouse purpose.

On analysing the sap of flowering Wheat I failed to detect phosphate of lime, and yet I knew it was there, as bread will support life, which it could not in its absence, as in Potatoes, on which a horse dies in about eight days, whilst he will fatten if chopped straw be added.

In the seed of the Rose I found a complete store of the neutral salts obtained from the ash of the stem. It was, therefore, manifest that the blossom acted under the sun's rays as a chemical battery for eliminating from the sap the neutral salts to be stored up as the pabulum of the future plant. Acting on this, I collected the Roses as they faded in the garden, taking them off to the second leaf where the first bud is found in its axil, and packed the Roses in a cask with the seed pod and first leaf as above described, and after a few months when this was decayed I rubbed up this rose-leaf mould with various sorts of loams and peats, in the proportion of nearly one-fourth of the former to three-fourths of the latter. I then planted therein *Devoniensis* of the same size and age, all cuttings of the previous year. Their growth and health were marvellous, and the number and size of the blossoms exceeding everything I had ever seen before; and what struck me as being peculiar was, that plants grown in loam from Epping, loam from Weybridge, loam from Coombe Wood, or peat from Wimbledon manifested no diversity, excepting that in the last (peat) the leaves were slightly purple and not quite so large, though the wood was fully as strong.

I also found that the Roses (in pots of course) retained their vigour and blooming power, and resisted the cold of winter (for I had no heat) with wonderful impunity, by giving them a top-dressing of the powdered rose-leaf earth with about a quarter of a pound of iron filings. These, of course, oxidised; and as I used rain water containing ammonia, and sometimes guano water very weak, the ammonia was fixed by the oxide of iron, forming ammoniate of iron—a soluble salt, and was therefore the means of conveying to the roots the nitrogenised compounds as well as the iron that is an element in almost all plants.—AMATEUR.

P.S.—I was told by a friend the other day that there is nothing new under the sun, for in the first book printed in England on horticulture (I cannot remember the title), it says "If you want your Roses to grow fine and be extra sweet, grow them always in an old Onion bed."

FRUIT PROSPECTS.

THE Dutch do not say a man is a bankrupt, but that he did not "keep accounts" or "take stock." Let me take stock of my fruit prospects.

Small Fruits.—Currants, Gooseberries, Raspberries, Strawberries are uninjured, and will be a very good crop. Cherries.—Morellos are a heavy crop, both the old sort and Morello de Chameux, dear kind Mr. Rivers' present. Dessert Cherries.—These are in fine crop and apparently safe: Bigarreau Napoléon, Empress Eugénie (two trees), Late Black Bigarreau, Brant, and Governor Wood.

Pears.—Beurré Hardy, Dr. Trousseau, Doyenné du Comice,

Beurré Clairgeau, Duchesse d'Angoulême (splendidly cropped on the Pear stock, the gift of Mr. C. Turner), Louise Bonne of Jersey, Poire Peach, Beurré d'Amanlis, Beurré Mauxion, Beurré Diel, (two trees), Beurré Bachelier, and two culinary trees not named, are in good crop and apparently safe, but till July (dropping time) we cannot decide the fate of Apples and Pears.

Apples are in fine bloom, but not forward enough to decide upon them.

Plums.—Belle d'Orleans, Rivers' No. 4, figured in the "Florist," Mitchelson's, Belle de Septembre, and Diamond are in good crop and apparently safe. Of Pears, Plums, and Cherries there are a good many failures.

Peaches and Nectarines.—These are well cropped under glass—namely, Royal George, Rivers' Early Silver, Barrington (two), Grosse Mignonne, Early Alfred, Early Louise, and the two Nectarines Prince of Wales and Violette Hâtive. Early Louise in my judgment is the best very early Peach, and the Royal George for indoors and out-of-doors work is the best Peach to have. The following are in good crop and apparently safe. South aspect—Peaches.—Royal George (three), Early York, Bellegarde, Nectarine Peach, Early Ascot, Early Alfred, Lord Palmerston, Barrington, and Violette Hâtive Nectarine. East aspect—Royal George (two) and Bellegarde. West aspect—Noblesse, Royal George, Dr. Hogg, and Rivers' Orange Nectarine. The east walls were most cut up. Had it not been for the "royal sail" coping little could have been saved. I observed that during the severe frosts the blossoms kept perfectly fresh and set their fruit most close under the dark shade of the sail. The pistil (female) is an unit, and if injured before impregnation there can be no fruit; also if the stamens (male organs) are injured there can be no fruit. Some of my sheets are ringed, but the last "royal sails" sent have an eye let into the sheets and tied by thick rope. We like these better than the ringed sheets, because the winds are so violent that the rings saw the sheets. I put on the "sails" March 10th and removed them April 29th. Many trees of all kinds have lost their crop, and some have a few fruits. I shall, notwithstanding droppings, have more fruit than I shall know how to do with.—W. F. RADCLIFFE.

THE NATIONAL AURICULA SOCIETY'S SHOW.

I SUBMIT myself unaffectedly to the strictures of your correspondent "VISITOR" and your remarks in the report of the National Auricula Show as set out in your last week's number, albeit somewhat exaggerated as to fact. I trust, however, you will allow me to say in explanation the evil arose rather from misfortune than fault.

Partially recovered only from the prostration due to long-continued acute bronchitis I lacked strength alike for the speech and action requisite for effective direction or leadership, and in this unhappy predicament had to contend with unusual difficulties. First my friend and colleague, Mr. Charles Turner of the Royal Nursery, Slough, was unable to be present from severe indisposition, and therefore his great aid was wanting. Next three exhibitors from the north from whom a considerable contribution was expected failed to put in an appearance, thus making the final arrangement and distribution of the several classes up to the time the Judges should have commenced their labours an impossibility. And finally our northern friends, Messrs. Horner, Barlow, and Simonite, who contributed so effectively to the importance of the Exhibition, and whose plants required by far the largest amount of preparation, were so worn down by thirteen hours of railway travel during the previous day and night that it was hopeless to attempt to hurry them in those needful preparations; and I presume to think, had I exercised the power vested in me of rejecting contributions not ready at the hour named—10 A.M., I should have taken a course fatal to future exhibitions of the Society, and such as would have produced an unanimous feeling of indignation in every person interested.

"VISITOR" and your reporter may be assured the matter of their complaint will not be treated with indifference; and the Judges who suffered—the Rev. Mr. Tymons and Mr. Tandy—who had come from so far to render us such signal aid, will, I trust, allow me to assure them they shall not in the future, if they will again serve us, be exposed to such annoyance.

To "EMBRYO" I would simply say he does the Committee only justice when he assumes they desire to develop and encourage new exhibitors; and if he will put himself in communication with me, though I cannot think his proposal to

create a class for exhibitors who have never before won prizes at all desirable or advantageous, yet I will give him proof of this desire on the part of the Committee, and I trust the arrangement of prizes in future years will satisfy and gratify every legitimate aspiration.—E. S. DODWELL, *Secretary*.

A RUN THROUGH CHATSWORTH GARDENS.

BEING rather unwell I went into Derbyshire lately to have a change of atmosphere and a short season of rest, and there finding myself within ten miles of Chatsworth I went one morning last week to see its gardens and my friend Mr. Speed, who manages them. I was greatly pleased with much that I saw. "The Palace of the Peak" appeared to my eye larger and more stately than it did on former visits, and the gardens seemed grander and broader in their features than they ever appeared to my eye before. Finding Mr. Speed near the kitchen gardens he took us through them first. What ranges of forcing houses we walked through! Eighteen vineries, a number of Peach houses, &c. I will not attempt here to review all that met my eye in the gardens at Chatsworth, for I took no notes and cannot remember the half, and therefore will confine my remarks to a few things that struck me in following Mr. Speed through his hothouses.

Let us look at the vineries first. Two of them are full of Vines in pots, eighty in each house, three bunches on each Vine, and some of the bunches I was told would weigh from 2 to 3 lbs. Capital practice this for early work. These Vines are grown from eyes every year and yield their crops in May, and thus prevent the pressure being put on the early houses before their fruit is fully ripe. The fruit in the first house of Hamburgs seemed quite as ripe as the fruit on the Vines in pots; and the history of this house as given by Mr. Speed is interesting. The Grapes in it last year shrank very much, and the Vines were considered worthless—mere cumberers of the ground. There was no risk in trying an experiment with them. Mr. Speed knew that there was food enough in the border, but fancied it was locked up in some way and might be liberated. He thought of bark-bound trees and men with sluggish livers. After the Grapes were cut last year he dusted the borders thickly with caustic lime; in fact, gave them a good coat, and forked it in during the winter. This coating of lime did all—perhaps a little more—than he anticipated, for the leaves of the Vines became healthy and vigorous as soon as the lime liberated the food of the borders. And what is the result this year? A house of fruit without a shanked berry; both bunches and berries of moderate size, and well coloured; and the shoots of this year are full of vigour, carrying great leaves blooming with health. The experiment was thoughtfully planned, and well and satisfactorily carried into execution. The Vines have been restored to health at very little expense of either money or labour.

I was so pleased with many things in the vineries at Chatsworth that I advised Mr. Speed to write a small treatise on Vine-growing, and thus give the public the benefit of his experience, now pretty ripe and extensive. In growing Grapes his aim is to have every bunch, and every berry of every bunch, perfect and well finished. The bunches are not only well thinned, but some of the larger are lessened in size with a view to have large berries, or excellence of quality. His borders are never dug, not even pointed with a fork, but are well manured by a three-course rotation of applications—that is to say, they have a different kind of manure this year from what they had last. First year they have stable or cow manure, second year bone dust, third year potash in some form or another, and soot every year without limit. I saw the men making some of the borders black with soot while I was walking through the gardens. Mr. Speed feeds his Vines well, and Mr. Thomson of Clovenfords spreads £100 worth of manure on his borders every year. All people know that great fat bullocks and horses have been well fed, and that without good feeding no such animals can be reared or seen anywhere. The grand Grapes which often meet the eye now-a-days are the outcome of rich borders and good management. Grape-growers have, as a body, been rather slow to estimate good stable manure at its proper value.

Another point in Mr. Speed's management is worth notice. The main rods of his Vines are 3 feet from the glass. Our great teachers on Grape-growing tell us to keep our training wires 16 inches from the glass for securing the rods and shoots of the Vines. Now our friend at Chatsworth, who thinks for himself, makes an amendment on this rule and puts it into

practice with great advantage every way. He lets his rods hang 18 inches below the wires, say nearly 3 feet from the glass. Well, the shoots grow upwards towards the light, and do not get broken against the glass or by the hand of man in trying to keep them from it. The shoots are tied to the wires, and some of them carry and ripen their bunches above the rods, so that on entering a vinery one does not see all the bunches hanging below the rods in orthodox fashion. We have to look amongst the leaves for the fruit. I saw the same mode practised at Temple Gardens near Manchester thirty years ago, and have ever since considered it the best and easiest way of training Vines. By this mode of training Mr. Speed exposes more leaves to the light, and therefore could get more fruit if he wanted it. In the last range of vineries we entered I noticed a Vine showing large bunches, which he said was his seedling, the result of a cross between the Alicante and Muscat of Alexandria. So far as size of bunch goes it is very promising, and Mr. Speed speaks well of its flavour. It is not yet named or put before the public.

I must not forget the Fig house and its crop of fruit, for I never saw Figs growing in such profusion or trees in such robust health. The fruit was as thickly on the shoots as Gooseberries are on theirs, and swelling fast. "Well, Speed, I never saw any gardener that can come near you in growing Figs! Never witnessed success equal to this! How do you manage it?" Answer: "I make my borders like Vine borders, and never prune or touch with a knife either root or branch. Sometimes I bend the shoots so as to fill open places and thus get the light, but never use the knife to shorten the shoots; but probably I owe my success to the fact that I rest my trees in winter. While other growers are ripening a third crop of fruit my trees are put to rest. I am satisfied with two good crops of fruit." Mr. Speed attaches great importance to his practice of letting his plants have a good rest, or in other words as long a winter as possible.

The Cape Gooseberry house always interests me. Last week it was full of fruit from end to end, and from bottom to top. It is hardly ever without a dish of Gooseberries. The Cape Gooseberry plants if treated like a Tomato will grow and bear fruit out of doors. In a span-roofed Melon house I noticed an experiment in progress with his Melon plants. Some twenty plants are planted in pure clay, and the rest, perhaps five times that number, are planted in good maiden loam. Most of the plants were beginning to show fruit. No difference could be seen in the plants. Those in clay were growing and showing as well as those in maiden soil, and the clay was well filled with roots. No experiment could be made in a fairer manner than the one I am now noticing, and I shall be concerned to know if the clay produce fruit equal to the loam.

In going through the plant departments at Chatsworth, the Orchid houses and large conservatory, I found much to admire and think about—plants in great variety, sometimes grouped in kinds and sometimes in mixtures, and all in the floral world of the Peak Palace indicating as much skill and care in their culture as we found in the fruit world below.

After dining with Mrs. Speed in the palace of the late Sir J. Paxton, probably the finest and most costly gardener's house in the world, we mounted our trap and left Chatsworth by the principal entrance, thinking that the noble owner of this princely place was fortunate in having so able and enthusiastic a gardener as Mr. Speed, and that Mr. Speed was highly favoured in having the Duke of Devonshire for his employer.—A. PETTIGREW.

TROPÆOLUM BALL OF FIRE.

A MOST useful and brilliant flower is this variety of *Tropæolum*. It is easy of cultivation, simply and easily trained, effective as a trailing plant, and it is especially adapted for training on the roofs of low-roofed houses, where the flowers are easily reached when wanted. It is useful also in the conservatory, and I hope soon to see this plant in general use. For a supply of brilliant scarlet flowers during the autumn, winter, and spring months I am not acquainted with many plants so serviceable as this is. It also makes a fine decorative plant on trellises of any shape that may be found expedient.

I lately saw in Messrs. Osborn & Sons' Nurseries, Fulham, a proof of the usefulness of this plant. They have it trained on the top of a shallow span-roofed cool house, where it is growing in luxuriance, and blooming in profusion. I was informed flowers had been cut from the plants for many months past, and the plants look likely to continue flowering for

months to come. These plants were growing in 24-sized pots only.

The soil requisite for growing this *Tropaeolum* is simple enough; an admixture of three parts of good friable loam, half a part of leaf soil, and half a part of good decayed cow manure with plenty of silver or river sand suits the plants admirably. Water must be administered judiciously, or rotting-off at the collar may be the issue, especially in the winter months; but as the season advances a good supply of water is necessary, and occasionally guano water may be used with advantage. The propagation of this plant calls for no comment, as cuttings may at all seasons be struck under the treatment given to the commonest bedding plant.—J. P.

AURICULA SHOWING.

I SHOULD not have been surprised had "D., Deal," objected to separate classes being made for new exhibitors, but I did not suspect that he would have opposed the new growers mixing Alpines with show varieties.

The reason that "D., Deal," advances against the admission of Alpines would exclude them from the schedule altogether. If Alpines should not be admitted because "anybody can grow and bloom them," why have classes for them at all? or indeed why have a Pelargonium Society and offer prizes for zonal Pelargoniums? or why have a Rose Society and offer prizes for Hybrid Perpetual Roses? If "anybody" can grow Alpine Auriculas anybody can also grow Roses and Pelargoniums. Admitting that to be the case, we must also admit that "growing" is a relative term. Anybody may grow them, but does or can everybody grow them well? That is the real point. The object of exhibitions is to promote excellence of culture, and surely Alpine Auriculas are as worth growing well as are other flowers.

Assuming that the National Auricula Society desires to gain as great an increase as possible in the number of exhibitors and subscribers it seems reasonable to offer every possible encouragement to new growers, and to allow them at least the same privilege that the old growers enjoy of mixing, if they choose, Alpines and show varieties in one or two small classes. By no other means can new exhibitors be secured so well, for the sufficient reason that the majority commence with Alpines on account of the show varieties being difficult to obtain.

The suggestions made will no doubt be considered by the Committee of the National Auricula Society, a body of cultivators who can be well trusted to arrive at a right decision in the matter.—EMBRYO.

VICTORIA PARK IN MAY.

FROM time to time allusion has been made in the horticultural press to the attractiveness of the various London parks, and especially to the excellence of the summer and autumn decoration of the flower beds and borders. Nowhere in Her Majesty's dominions can better work be found than that alluded to, and probably no work of the Government meets with more unqualified approval of British taxpayers than that accomplished in such parks as Victoria, Hyde, and Battersea. While the summer beauty of these parks is admitted to be of a high order, they are worthy of equally honourable mention for their attractiveness in spring. If in September they are gorgeous, in May they are lovely. In late summer their beauty is of an artistic order; in early summer natural charms predominate.

Victoria Park is now peculiarly enjoyable. The grand masses of foliage and its varied and refreshing tints while yet undefiled by London smoke cannot fail to command the high appreciation of all visitors. Flower beds may be criticised and certain arrangements of colours and combinations of plants may be objected to according to the effects they produce on different minds, but the natural beauty of trees when it is permitted to become fully developed is beyond criticism. Occasionally adverse weather, but more frequently injudicious planting and grouping of trees, mar their beauty; but the weather this spring has been unusually salubrious, and the planting of the trees in this Park has been done with much taste, and the result is that the Park cannot at any period of the year be more really beautiful, more thoroughly enjoyable than it is now.

Neither is the beauty at all monotonous; on the contrary, it is most varied. If you want severe and stately beauty you have it in the imposing avenues of Limes and Elms. The

trees themselves—the play of light and shade dancing amidst the foliage, and the ground beneath dappled with slanting shadows, are all elements of beauty which cannot be passed unobserved during the spring time of the year. "Unter den Lindens" is a favourite resort of the east-enders who repose by thousands in the seats provided for them. These fine young avenues are principal feature of this Park, and the manner in which they are appreciated suggests that shady promenades are indispensable to the full enjoyment of public parks and gardens.

Do you want something less formal—free and rugged beauty? and you find it in the curving walk at the south of the upper lake. Boldness of conception, admirable taste, and skilful execution are reflected in this division of the Park. On the one hand abrupt rising mounds surmounted with choice forest and deciduous flowering trees produce at this period of the year an effect with which carpet beds in summer are puny by comparison. On the slopes of these bold promontories the double-blossomed Cherries have lately been masses of purity, and now the Thorns, in double and single, pink and white, are carrying on the floral display. The *Crataegus* are very numerous and fine. A tree of *C. precox*, the Glastonbury Thorn, is now in full beauty, and there are many attractive specimens of *C. pyrifolia*; *C. tanacetifolia* and others are equally attractive. These trees and golden Laburnums, and dense masses of Lilacs interspersed with the deciduous trees, noble specimens of Hollies and other evergreens, render the mounds of flowers and foliage singularly imposing. The banks are broken by nooks and vistas, and their sides are relieved by groups of Yuccas, *Y. recurva* being largely grown and produces an elegant and distinguished effect. Alpine mounds richly clothed in the most natural manner with Sedums, Rock Roses, Ivy, &c., impart agreeable variety to the surrounding wealth of foliage and flowers. On the other hand, the water is seen through curving vistas. The weeping trees on its margin, Kilmarnock Willows, Birches, Poplars, &c., are now in their early summer freshness. The Weeping Aspen (*Populus tremula pendula*) is singularly graceful now that its ever-moving foliage reflects the light from its glossy leaves. It is one of the most elegant of weeping trees, but to be seen to advantage in the London parks it must be seen in the spring. The several islands are similarly seen to better advantage now than later in the summer; for not only is the foliage fresh, clean, and glossy at the present time, but it is not sufficiently dense to prevent the natural herbage and wild flowers being seen with which the islands abound. The "water scenes" in this Park are extremely picturesque. The rich masses of overhanging foliage of various hues contribute greatly to the attractive appearance of the lakes. One of the most imposing of the overhanging trees is the Weeping Wych Elm (*Ulmus montana rugosa pendula*), its large branches of bold foliage spreading almost horizontally for several feet across the water.

Whatever force there may be in the objections that are sometimes heard as to the "chilling artificiality" of the London parks when the carpet bedding is at "its height," such objections cannot apply now, for natural beauty reigns supreme during the months of May and June. During the present year the tree-beauty of the parks is especially striking, for never before has the foliage expanded more freely and the flowers opened more profusely and kindly.

There is also at Victoria Park flower-beauty of a lowlier form than that pertaining to the trees. The mile-long semi-wild herbaceous border has for a length of time been gay with spring-flowering bulbs, and will continue attractive throughout the season as the different hardy plants unfold their flowers. At the present time the most conspicuous flowers in this border are the snow-like cushions, nearly as large as cart wheels, of Iberises. These telling masses are 5 and 6 yards apart, and equally effective behind them are bold clumps of the large blue German Iris, which is one of the most valuable of shrubby plants for town and country gardens. Exceedingly cheerful now are large clumps of *Scilla campanulata* and the white double Tulip *La Candeur*. Wallflowers impart perfume, and are this year fairly good: usually they perish during the winter and are not reliable London park plants. Neither can Sweet Williams be grown in any satisfactory manner, nor Phloxes. It is sufficient, however, to observe that whatever can be grown is grown; for although "bedding-out" is done so well the Superintendent of this Park is an ardent lover of hardy plants and florists' flowers, and does all that he can to promote their culture.

The Tulip beds in the principal flower garden have been gorgeous, but are now fading. Only three varieties are grown in quantity—namely, Yellow Prince, Rex Rubrorum, and La Candeur : those are found to succeed the best and to give the greatest amount of satisfaction. The beds will shortly be occupied with other flowers which are now in the preparing grounds. In this department men are as busy as bees striking cuttings, potting, boxing, cleaning, and sheltering the quarter of a million of plants that are required for the season's display. A finer lot of plants cannot be wished for than those now nearly ready for the beds. Plant-making, and, indeed, flower-pot making, are still going on and will continue for some time. The pots are made of loam, cow dung, and leaf soil ; in fact, rich potting mixture moistened like mortar. A man with a tin mould makes eight hundred pots per day ; forty thousand of these pots made this spring are now in use. If made in the morning and a fine day follows the pots are ready for use in the afternoon. These pots are planted in the beds, turn soft by the moisture of the soil, and the roots protrude through their sides ; in fact the feeders are through in all directions before the planting is done. Thus the plants are supported and the beds are enriched at the same time. Nearly all kinds of plants thrive in them as well as in properly burnt pots from the potteries ; the exceptions are *Alternantheras*. These plants do not "take to" the "mud pots," but all other small bedding plants grow in them luxuriantly.

Every department of this diversified Park testifies that it is in excellent keeping, and an inspection of it at this period of the year is quite as pleasurable and equally instructive as a visit during August or September.—VISITOR.

A PLEA FOR AMARYLLISES.

UNDER the above heading Mr. Abbey gives an outline of how he grows the *Hippeastrum*. The necessity of a "plea" is in itself evidence that objections and difficulties exist as to the cultivation of these plants, for everyone is ready to admit that few flowers are more beautiful or capable of affording more interest in their management. How is it, then, that they are so seldom met with in greenhouses? Amongst my numerous acquaintances I now know but one who has not discarded the attempt to grow them. The reasons are very obvious : first their costliness, and second the difficulty in getting any information or description of the best sorts to grow. The fact is they have been crossed in every conceivable direction, and for one good variety raised hundreds of worthless seedlings have been produced and, unfortunately, not destroyed, and these form the bulk of the bulbs offered for sale, care being taken to omit all description of the flowers, save of a few old-established species, in the annual catalogues. If anyone, therefore, takes the trouble, as I have done, to send to the first houses for six or eight dozen bulbs and grow them on for a year or two till they come into bloom he will find that not one in ten will repay the trouble of growing, and that he has bought disappointment at a great cost ; whereas, had he in the first instance given several guineas for a single bulb he might have been charmed with a fine variety for years. But such costly bulbs few amateurs are willing to purchase when making their first essay, and the memory of previous disappointment is tenacious and difficult to eradicate. However, of less costly bulbs I can strongly recommend beginners to obtain the following, which will flower well in a cool greenhouse under proper treatment :—Osborn's Defiance, marginatum venustum, pardina, vittata Harrisonii, v. superba, and reticulata major. These can be purchased for about half a guinea each—i.e., flowering bulbs, and will well repay culture provided only they be procured free from thrips and mealy bug.

Your correspondent is quite correct as to the folly of keeping them too dry at any time. I know of nothing that requires drying off, and since I have taken to deluging even *Gloxinias* I have lost none, and as early as March I had in a cool house forty or fifty plants sufficiently advanced to enable me to make cuttings for succession plants for flowering in August and September, and if the season be then mild they will continue in bloom almost to Christmas, as was the case last year.—AMATEUR.

SCOTTISH HORTICULTURAL ASSOCIATION.

THE ordinary monthly meeting of this Association was held on the 7th inst. in The Hall, 5, St. Andrew Square, Edinburgh. There were about a hundred members present, the President in the chair. Twenty-three new members were nominated for admission.

After the usual routine business Mr. John Methven read a paper on a holiday ramble among the Alps, describing the grand and varied scenery of the country, and naming the various plants found in the different vegetable zones. He also told the members of the many beautiful Alpines that grew and flourished there unheeded. Mr. B. Lindsay followed with a paper on their cultivation. He went over the principal cultural points that ensured success, and exhibited some thirty specimens of the most beautiful and rare gems of the long list of Alpines. A short discussion followed the reading of the papers. Thereafter a paper was read from Mr. John Webster, Gordon Castle, on Peach culture in the open air in Scotland. After adverting to the uncertainty that attended a fruit crop in North Britain the writer of the paper detailed his own experience in the culture of the Peach at Gordon Castle. He formed a border along a south wall to the depth of 8 feet with 16 inches of drainage, leaving only 20 inches for the



Fig. 56.—*Erica propendens* (see page 376).

roots to roam in. This plan gave the roots a large share of solar heat, and proved eminently successful. The discussion which followed brought out the truth of Mr. Webster's observations, several members alluding to the high culture of various hardy fruits in the district of which Gordon Castle is the centre. The following plants were tabled for inspection :—Stand of *Violas* and Alpine plants by Dicksons & Co., collection of Alpine plants by Mr. Robertson Munro, one *Auricula* by Mr. W. Young, bunches of flowers by Lady Gertrude, *Viola* by Mr. John Gray, four Alpine *Auriculas* by Mr. G. McClure, one *Primrose* by Mr. John Fraser, and *Primroses* by Mr. G. L. Brown.

TREE FERNS.

IN the course of years one has now and then met with illustrations of arboreal Ferns, either in works on horticulture or trade catalogues, or illustrated papers, &c., yet in no instance that one can call to mind are Tree Ferns represented as they are actually seen growing in many sheltered places. These plants under cultivation in Europe seem to have undergone some trimming process near akin to shaving amongst weak mortals ; here you may see *Dicksonias* bearing their old fronds in a variety of warm shades of ruddy brown. A few days since I counted upwards of fifty layers on a fine old tree, the

accumulated fronds depending in cloak-like fashion with sweeping folds from the crown to the ground. With *Cyathea dealbata* this habit is less constant. Only this day I was rambling amongst some lofty specimens of *Hemitelia Smithii*, which in many instances carried rich coverlets of the old persistent fronds. Are old fronds cleared away from want of space, from notions of tidiness, or from a whim of fashion? Possibly fashion authorises this custom of denudation. I have known a barbarous gardener tear away the natural covering of *Cordylines* till a good reason was offered to his notice. Why, he had better sacrifice his ideas of tidy nakedness, and suffer Madam Nature to arrange her toilet in her own graceful method.—THOS. H. POTTS, *Ohinitahi, New Zealand.*

DOUBLE AND SEMI-DOUBLE WALLFLOWERS.

IN a recent number of the Journal "A SPRING GARDENER," at page 225, earnestly draws attention to the propagation, culture, and charming effect of this, I will say, almost incomparable spring flower—incomparable for outdoor culture when well grown. If you will permit me I will endeavour to enlist the sympathy of your readers for a more extensive culture of this favourite flower and say what I mean by "well grown," premising my remarks by a few observations on propagation.

If new varieties are wished for you must look to raising plants from seed, but the most convenient, certain, and effective mode of increase is propagation from side shoots as early as they can be found in spring. If your plants produce no offshoots cut down the flowering spike and mulch or give liquid manure to encourage their growth, so as to afford cuttings. I give a preference to the former, as they can be had earlier generally, and rootlets are more certain when you have a "heel" and there is then less liability to damping-off. A great object should be to have your plants coming into flower in early winter, when other ornamental flowers are scarce out of doors; you cannot therefore have your future young plants too early. For securing plants for early blooming, their growth might be expedited by starting in a cool frame; but under ordinary circumstances the side shoots referred to will root readily in a sunny border in light sandy soil, and to make certain of your plants the varieties should be labelled. For bedding, border, balcony, or window what can compare with a well-grown double or semi-double Wallflower during the winter and spring months, requiring so little care and yet so fragrant and brilliant in colour? As an amateur I value the plant for those qualities, and will not compare it with those brilliant but evanescent beauties that "sparkle like a meteor and are gone." I enclose you a spike of the first to hand in bloom since last November, and that, you will observe, would take another month to unfold its petals. The colour is peculiar—pale red and yellow softly shaded into each other. The spike is 10 inches in length, and would doubtless be nearly a foot when fully expanded. Four more similar spikes yet continue blooming on the same stem. Much better ones have ceased flowering. This is semi-double and would produce seed, and (making allowance for bee and foreign impregnation) with tolerable accuracy the same variety. At a recent visit to the seat of Mr. John Bagwell, Marfield, one of the most conspicuous features in a charming spring garden was a brilliant display of many varieties of Wallflowers in central chain beds—a glorious contrast of the plain and useful with the picturesque and grand around.—W. J. M., *Clonmel.*

[The spike received is both novel and fine.—EDS.]

PORTRAITS OF PLANTS AND FLOWERS.

LOXOCOCCUS RUPICOLA. *Nat. ord., Palmæ. Linn., Monocæcia Polyandria.*—"This elegant Palm is a native of rocky places in forests of the southern and central parts of Ceylon, from whence seeds were sent to Kew by Dr. Thwaites, F.R.S., Director of the beautiful botanical gardens of the island. Dr. Thwaites describes it as attaining the height of 30 to 40 feet, and adds that the seeds are chewed by the Cinghalese with their betel as a substitute for those of *Areca Catechu*. It flowered for the first time in the Victoria house at Kew in February of this year, and from its graceful habit and its coral-like inflorescence it was a most attractive object."—(*Bot. Mag., t. 6358.*)

ACOKANTHERA SPECTABILIS. *Nat. ord., Apocynæ. Linn., Pentandria Monogynia.*—"Mrs. Barber writes that the seeds are intensely bitter, and the whole plant considered by the natives to be a deadly poisonous one. The genus is, as Mr.

Dyer has remarked, too closely allied to *Carissa*, differing chiefly, if not solely, in the want of thorns. *A. spectabilis* is a native of the western districts of South Africa, from Albany to Port Natal, where it forms a large shrub, with masses of white very fragrant flowers, on woody sand hills near the sea. It was introduced by Mr. B. S. Williams and exhibited by him in 1872. Our specimen flowered at Kew in February of the present year."—(*Ibid., t. 6359.*)

AMBROSINIA BASSII. *Nat. ord., Aroideæ.*—Sir J. D. Hooker says, "For the opportunity of figuring this singular and interesting little Aroid I am indebted to Mrs. Grant Duff, who accompanied her husband, Mr. E. Grant Duff, M.P., F.L.S., of York House, Twickenham, to Algeria in the winter of this year, and brought living plants, which she presented to the Royal Gardens, and which, being in bud, flowered in February. It is one of the most curious of European plants, presenting with something of the habit of *Asarum* a floral economy in many respects resembling that of some of the terrestrial Orchids."—(*Ibid., t. 6360.*)

GREVILLEA ERICIFOLIA. *Nat. ord., Proteacæ. Linn., Tetrandria Monogynia.*—"G. ericifolia was raised from seeds sent by Baron Von Mueller, F.R.S., of whom it is not too much to say that he is the greatest colonial botanist that has ever lived, alike eminent as a traveller, a collector, and a describer of the vegetable products of his adopted continent. It has a wide range in Australia, from the interior of New South Wales to Melbourne and Port Philip."—(*Ibid., t. 6361.*)

CROCUS ETRUSCUS. *Nat. ord., Iridacæ. Linn., Triandria Monogynia.*—"We owe this interesting addition to our stock of cultivated Crocuses to the enterprise and energy of Mr. George Maw. Before 1876 not even a dried specimen had reached England, and it was known to us only by the description of Parlatore. Mr. Maw undertook an expedition to Italy expressly for the purpose of hunting it out, and after much trouble succeeded in accomplishing his object. The locality where he obtained it was Salita de Filetto, near Massa Maritima, in the Tuscan Maremma, where he found it in plenty in full flower at the middle of March."—(*Ibid., t. 6362.*)

SENECIO SUBSCANDENS. *Nat. ord., Compositæ. Linn., Syngenesia superflua.*—"A very fine hothouse climber, which has been for many years cultivated in the Palm house of the Royal Gardens, to which it was presented by the late Dr. Welwitsch. It was first described from Abyssinian specimens, but it has also been found by Meller during Livingstone's Zambesi expedition near the Murchison Falls. It belongs to a small scandent section of the genus, of which there are several tropical African and South African species. In the Palm house it forms a rambling herbaceous climber, trained up one of the iron girders, and flowering freely in January."—(*Ibid., t. 6363.*)

GLOIRE DE DIJON ROSE.

I WAS very pleased to see my remarks on *Maréchal Niel* Rose so ably verified by Mr. Moorman at page 332. "A thing of beauty" is said to be a "joy for ever." A *Maréchal Niel* Rose bush in full bloom cannot always remain beautiful, but most assuredly the recollection of it will not fade with the fading flowers. The Rose which heads these notes is equally well known as the *Maréchal*, and in some respects it is a more desirable Rose. I hope this does not look like detracting from the *Maréchal's* unique merits, but the free way in which the *Gloire* blooms in the open air gives it the advantage over the *Maréchal*.

Those who only grow a few sorts and do not include *Gloire de Dijon* make a great mistake, as it is the first Rose to come into flower in the spring and the last to cease flowering in the autumn. During some years and in some localities it actually blooms all the year round. With us it produces many fine flowers against an open south wall in April, and the tree continues yielding fresh blooms until November. The flowers have not then the irresistible attraction of blooms of *Maréchal Niel*, but they are not by any means deficient in either form, fragrance, or colour, and when cut just before half expanded they are quite elegant. Yet, well as this Rose does out of doors, it does better under glass, especially in the spring months, and I would advise all who can spare room to grow one or more plants of it under glass for supplying cut flowers. We have cut many dozens of fine blooms from a plant climbing up a pillar and running along some wires in the conservatory here during the last two or three months. The flowers are produced in great numbers, and as each new batch of shoots is formed a succession of blooms follows. Excepting

Maréchal Niel I would rather have the old Gloire for producing Roses under glass than any other variety that I am acquainted with.—M. M.

CAPE HEATHS.—No. 5.

MAY.

RESUMING our subject from last month, we now suppose that the repotted plants will be rapidly making roots and also growth, the late very genial weather we have experienced having been specially suitable to them; therefore the frames, pits, or houses should be opened upon all possible occasions, and even during a gentle shower the plants should be left exposed. It will, however, be well to carefully examine them



Fig. 57.—*Erica princeps*.

and water any that are dry, else the rain will only moisten the surface, and thus lay the foundation for that great pest mildew. This plague to Heaths does not show upon them very much so early in the season, but they must be carefully watched for it, and when discovered let them without delay be dusted with sulphur, which, however, should not be used in sufficiently large quantity to disfigure the plants, neither should it be allowed to fall upon the soil, as it is very injurious to the roots. From amongst the numerous kinds which are now in flower we select the following, all of which are deserving of general cultivation:—

E. physodes.—Unfortunately this elegant species is now rare in collections. It is a dwarf but erect-growing plant, producing whorls of little branches. Leaves arranged in fours, linear, obtuse, and spreading; the margins glandular. Flowers terminal, mostly in fours, pendant, and pure white.

E. propendens (fig. 56).—This is an elegant spreading and much-branched plant, bearing a profusion of flowers upon the small pendulous branches. Leaves in fours, linear, reflexed with age, slightly downy, and light green. Flowers mostly in pairs, bell-shaped, and reddish purple.

E. princeps (fig. 57).—A strong-growing shrubby plant, producing stout branches and large terminal umbels of bright flowers. Leaves arranged in fours, recurved, linear, abundantly

furnished with bristly hairs, and dark green. Flowers large, in umbels of five to ten, flask-shaped, with a much-swollen base; colour bright fiery red.

E. Cavendishiana.—A strong, erect-growing, and vigorous plant. Leaves mostly in fours, linear, smooth, and intense rich green. Flowers large, tubular, terminal on the smaller branches, and produced in great abundance; colour clear golden yellow.

E. ferruginea.—An elegant plant with closely-set foliage. Leaves linear, slightly spreading, profusely clothed with rusty-coloured hairs at the margins, and pale green. Flowers terminal in large whorls, tubular, and about an inch long; colour deep shining red, suffused with rose towards the mouth.

E. affinis.—A very handsome garden variety, resembling *E. Cavendishiana* in habit and colour of flowers; it differs in the yellow being much paler, and in having a close contracted neck to the flower, whilst in the kind just named the mouth is quite open.

E. primuloides.—This is a very compact and dense branching little shrub. Leaves mostly in fives, much crowded, linear, smooth, and dark green. Flowers in fours or fives, erect and terminal, neck contracted, base much swollen; colour bright shining red; segments of the limb spreading, pure white above, with a deep red eye.

E. Monsoniana.—A robust, erect-growing, and much-branched shrub, now unfortunately extremely rare in cultivation. Leaves arranged in fours, linear, obtuse, somewhat spreading, and deep green. Flowers in threes, large, tubular with a contracted neck, pendulous, pure snow white, and terminal on the small branches, thus forming a dense long spike of bloom.

E. obbata.—A fine robust branching shrub. Leaves arranged in fours, reflexed, hairy, and light green. Flowers terminal, much inflated at the neck; limb large and spreading; pure white.

E. obbata umbellata.—This is a grand variety of the preceding, differing principally in the larger flowers, which are slightly squared at the base, and also in the larger number of blooms in the umbels; colour pure shining white.

E. suaveolens.—An erect-growing somewhat lax-branched species, producing very large clusters of sweet-scented flowers. Leaves ascending, arranged in sixes, linear, smooth, and dark green. Flowers in clusters of twenty to forty, cylindrical, and soft creamy rose in colour, which becomes tinged with purple by exposure.

E. aristata major.—A splendid variety, in habit dense and much branched. Leaves arranged mostly in fours, recurved, furnished with a long stiff hair at the point, and dark green. Flowers in fours, upon long coloured footstalks, and terminal upon the smaller branches; blooms large, tubular, deep shining reddish purple; segments of limb flat, white at the margin, deep blackish purple at the base.

E. McNabiana (fig. 58).—A very useful and ornamental kind, of which there are several varieties, which differ only in the colour of the tube. Leaves in fours, stout and obtuse, the ends armed with stiff, bristle-like hairs. Flowers in umbels near the apex of the branches, upwards of an inch long, cylindrical, slightly swollen below the middle, rosy red at base, increasing to deep red towards the neck; limb large, and spreading white.

E. Beaumontiana.—A handsome species when in flower. It is a shrubby-growing plant, producing many slender flexuous branches. Leaves mostly in fours, linear, flat above, channelled beneath, ciliated, and pale green. Flowers three to six, terminal on the smaller branches, bell-shaped, with a reflexed margin, pure white.

E. depressa.—A dense compact-growing plant of great beauty, the peculiarly depressed or downward growth of its branches giving rise to its name. Leaves arranged in fours, stout, and blunt-pointed; colour intense deep green. Flowers mostly in threes at the ends of the branches, cylindrical, about an inch long, and rich golden yellow in colour.

E. florida.—An erect-growing kind, with numerous slender branches. Leaves in threes, linear, obtuse, smooth, and pale green in colour. Flowers in threes, terminal upon the small branches, pendulous, bell-shaped, sweet-scented, and delicate rosy pink in colour; footstalks and floral leaves or bracts same colour, which adds materially to the general display.—W. H. G.

GLOXINIAS.

Few if any dwarf-growing, summer-flowering, decorative plants combine such massive beauty of foliage with handsome

and variedly coloured flowers as do Gloxinias. Great improvements have been effected in this genus during recent years, and many fine varieties have been raised by both English and Continental cultivators. Messrs. Veitch & Sons have on several occasions exhibited flowers of fine form, great substance of petal, and rich and clear colours. Mr. Williams has also staged now and then remarkably fine flowers, and at the last exhibition at South Kensington Mr. Wills "came out" with a splendid group of seedlings raised at Anerley. At the same exhibition, too, a singularly fine collection was staged by Mr. Barron, the plants having been grown at the Royal Horticultural Society's Garden at Chiswick. Many of the flowers in this collection were remarkable for the chasteness of their markings, and their merits demand fuller notice than could be accorded to them in the report of the meeting referred to. The following are a few of the finest varieties in this very fine collection:—

Lord Derby.—An upright flower, alike striking by the purity of its throat and the rich contrasting colour of its lobes. The throat is spotless white, and lobes rich violet shaded with pale purple. Very fine.

Dominico Scassi.—Upright, pure white throat; lobes celestial blue. A very attractive and fine variety.

Boule de Feu.—Upright. A large flower of stout texture; colour glowing crimson scarlet. Very rich.

Boule de Neige.—Upright. Pure white, very free. Mont Blanc is equally pure and also larger, but apparently not quite so floriferous.

Madame Thibaut.—Upright. White ground, densely and regularly spotted with rosy crimson and purple. A splendid flower.

Madame Courant.—Upright. Deep and pure white throat spotted with violet; deep violet lobes. Very fine.

Madame Boutard.—Upright. Very free; flowers of fine form, throat much shaded and spotted; segments rosy pink.

Mon Caprice.—Upright. Pure white throat; segments curiously shaded with purple and rose.

Etna.—Semi-drooping. Glowing crimson. Bold and fine.

Madame Haines.—Drooping. Colour rich crimson, edge of lobes paler, pure white throat.

Gloria Mundi.—Drooping. A very broad and fine flower. Colour rosy crimson, white throat with a bright scarlet band.

Alice.—Drooping. Colour rich purple; very dense. A neat and attractive flower.

The twelve varieties named all possess features of excellence, and are worthy of being grown wherever conveniences for growing them are afforded. Provided a moderately heated stove, or even a shelf not too densely shaded in a vinery, are afforded, Gloxinias can be grown in a satisfactory manner. They are of the easiest cultivation, and if due attention is bestowed on them they are seldom troubled with insects. They are increased by leaves inserted now in light sandy soil and placed in heat until tubers are formed, which will produce fine flowering plants next year. They are also readily increased from seed, which may be sown any time from now until August. The tubers so raised will be strong by the autumn, and next year will form plants of great decorative value and much superior and earlier than when the seed is sown early in the spring and the plants are flowered the same year.—J. W.

SHADING FERNS.

A FEW bright days about this time remind us that extra attention will be required to the ventilation of plant houses; and if shading is to be used it should be looked to and got ready. Shading for some plants is necessary at certain times, but the difficulty is to know what amount of shade is required for each class of plants under cultivation. Our idea is that the less shading plants get the better. We have often been asked, Do Ferns require much shade? It is not easy to give a proper answer to such a question without knowing the other conditions under which they are cultivated. If a fernery be so thickly shaded as to exclude every direct ray of sunshine, and with a high moist temperature and rather a limited amount of air, syringe the plants twice a day and throw plenty of water about the floors. Under these conditions the plants will grow fast and have a soft, green, fresh-looking appearance up till about October. From that time the work of destruction will go on, which no amount of skill or attention will be able to stop. Some of the fronds will turn yellow, brown rusty-

looking patches will come on them, and scale will be abundant. The plants will have such a wretched appearance that it will be necessary at times to cut off quantities of fronds till there is nothing left but the skeleton of what should have been good plants. The very low temperature during severe weather, or the drip from the roof, or some other such cause will be blamed, when the fault really is in the summer treatment. Cases of this kind are to be met with in every locality where plants are grown in a higher temperature than that of a greenhouse. I have found treatment nearly the reverse of this to suit the majority of Ferns grown for decorative purposes. Whatever shading is used it should be of the lightest description, and only to break the direct sunshine. The plants should be as near the glass as possible, and receive as much as possible of the morning and afternoon sunshine, in fact in some localities all the sun they can get. Abundance of air should be given them early in the day without lowering the temperature. Under such treatment more attention will be required to watering, the plants will make a firmer and hardier growth, they

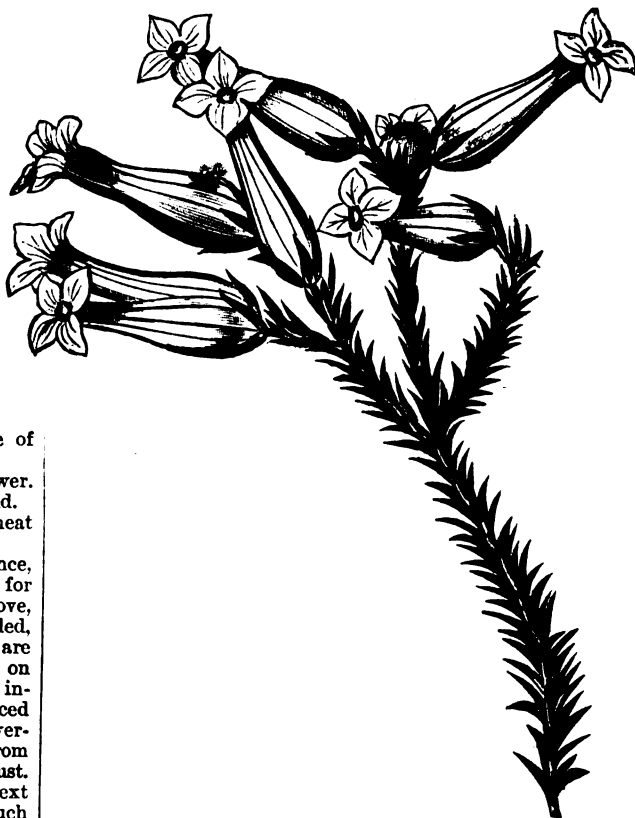


Fig. 58.—*Erica McNabiana* (see page 376).

will keep their foliage fresh till the old is replaced with young fronds, insects will give but little trouble, they will stand a much lower temperature in winter, and the fronds, if used for cutting, will last much longer. Ferns growing in a state of nature are often met with enjoying the full sunshine for at least half the day. Some plants of the Tunbridge Fern growing here wild enjoy the full sunshine till about nine o'clock in the morning; other plants of it growing entirely in the shade are not nearly so fine. The only plants of the *Osmunda regalis* I have seen growing wild—and they were in great abundance and luxuriance—was in a position where they were exposed to every blast of sun and wind. These were growing on an Irish bog, round the edge of a pool of water.—P. GRAHAM, *Leyeswood, Sussex* (in *The Gardener*).

NOTES ON VILLA AND SUBURBAN GARDENING.

NEVER, perhaps, have the real beauties of a garden been better displayed in May than during the present year. Under the influence of warm showers and otherwise genial weather there is not a tree nor a shrub that is not decked in its gayest attire and glowing in the fulness of its beauty.

It is a busy time in every department. The grass grows very rapidly and must be kept down by the frequent use of the mowing machine, for one of the principal points in a pleasure ground is the beauty of its turf. We prefer going over it frequently rather than setting the machine so low as to lay bare the roots of the grass, which machines will do if set very low. A happy medium is the best. Should the machine, however, miss any portion of the grass it may be advisable to mow it over again in the opposite direction, and any bents left after that must be taken off with the scythe, but on well-kept lawns this advice will not be needed. Plantains, Dandelions, and such like weeds on lawns must be destroyed by persistently rooting them up.

The recent heavy rains have been excellent for the keeping of walks in good order. Weeds have come out easily, and by the frequent use of the roller all has been made firm and solid. Cut grass verges frequently. We make it a practice to run the shears around the edges of the walks every Saturday; the walks are then swept and afterwards rolled with a heavy roller, this maintains them in excellent order, and the work is less heavy than allowing the verges to grow for a longer time, and then having a good clear-up, which we find is the case in many small gardens.

Roses.—We anticipate a splendid Rose season. The shoots have broken strongly and are getting into splendid leafage, and timely attention must be given them. Nature is doing her part well; we must assist her in freeing them entirely from attacks of aphides and caterpillars, which too frequently infest the young growths. Green fly is perhaps not quite such a destructive pest as the Rose maggot and caterpillars, still the aphides impede healthy growth, without which it is impossible to have good flowers. A tolerable free use of the garden engine will generally clear away the aphids, but to rid the trees of the maggot and caterpillar hand-picking is the only real cure. The pest can easily be detected by the leaves curling up, or two leaves sticking together. A simple pressure between the finger and thumb is sufficient to kill them. While doing this we find it a very good plan to pull off all ridged and despoiled foliage, as well as to thin out any weakly growths that will not bloom. This imparts to the stronger growths more vigour, and better wood is made for next year. Remove any suckers that may arise from the roots of either the Manetti or common Briar, also from the stems of standards, and place supports to such as require it.

From now to the end of this month may be considered safe to commence the bedding-out of the summer occupants of the flower garden. Let everything be well prepared, and commence with Calceolarias, Geraniums, Ageratums, and Petunias, reserving the more tender plants for fear of an unwelcome change in the temperature. Many of the flower beds are still gay with spring flowers; these as they fade must be taken up and removed to the reserve garden. Have everything in readiness, both plants and plans, so that no time be lost in making the beds gay for the summer.

Hardy Fruit.—The prospects of most kinds of fruit could scarcely be better, and we may now begin to feel that we are comparatively safe, as the foliage in most cases has become sufficiently developed to protect the embryo fruit. Unremitting attention is requisite to ward off green fly, which is becoming plentifully enough already. A dusting with tobacco powder and a free use of clear water distributed with great force from a garden engine are the best remedies to apply. Pick off all leaves of Peaches and Nectarines that are curled and blistered, and rub off any superfluous or foreright growths. Strawberries are now throwing up their flower stems very plentifully, and should have some clean straw or long stable litter that has been laid to sweeten placed around and between the plants, to protect the fruit from becoming gritty during heavy rains and to arrest evaporation. The applying of the material cannot now be done too soon.

Kitchen Garden.—The principal work here for the present will be killing weeds and the thinning of advancing crops of Onions, Parsnips, Carrots, Turnips, Spinach, Lettuce, &c. It is not always a good plan in a small garden to thin to the extreme limit at first, as many things—such as Spinach, Onions, and Carrots—can be pulled while small and used in the kitchen; but, on the other hand, do not allow them to become crowded and consequently interfere with each other's progress. Parsnips and Turnips thin to a foot apart. Lettuce transplant in rows a foot apart and the same distance from plant to plant. Make further sowings of Turnips, Spinach, Lettuce, Radishes, and other small salads. Paris White Cos Lettuce is a good variety for summer use, and red and white Turnip Radish. French Breakfast Radish is very good for a quick supply, but it does not keep good long. The main crop of Runner and Dwarf Kidney Beans should now be made. The variety known as Champion Runner is one of the best, and should be planted in a well-manured piece of ground in a very open space; it is useful also for running up palings or for blocking out any unsightly object. Canadian Wonder is one of the best and most prolific of the dwarf varieties; it produces an immense crop of long straight pods. Negro Long-podded is also another very good variety, and does well in most places. Prick out Celery on an open piece of ground, and sturdy plants will soon be provided for planting in the trenches. Vegetable Marrows should be hardened off and planted either on a heap of decayed

refuse and soil, so that the growths may run down all over the surface, or a trench may be taken out about 4 feet wide and filled in with partly spent manure such as been used for the linings of hotbeds, covering the whole over with a good depth of soil. Plant on the top of this and cover with handlights. The plants will soon be established, when the handlights may be removed and the plants left to grow at their own free will.

NOTES AND GLEANINGS.

We are pleased to learn that Her Royal Highness the Princess Louise (Marchioness of Lorne) has been graciously pleased to consent to **DISTRIBUTE THE PRIZES** at the Whit-Monday Popular Flower Show, to be held at the Royal Horticultural Society's Gardens.

—THE usual monthly dinner of the **HORTICULTURAL CLUB** took place on the evening of the 7th inst. Some magnificent Asparagus was sent for the dinner by Mr. Arthur Dickson of Chester grown on the Cheshire coast, which in size and excellence was quite equal to French-grown produce, and had moreover the advantage of a much larger proportion of the edible portion. We understand that it is in contemplation to have a special dinner on the opening day of the Royal Horticultural Society's great Show.

—WE have received the schedule of the southern section of the **NATIONAL CARNATION AND PICOTEE SOCIETY'S SHOW**, which is to be held at South Kensington in conjunction with the meeting of the Royal Horticultural Society on July 23rd. Those who visited the Society's Exhibition in the Westminster Aquarium last year could not fail being impressed with the superlative beauty of these favourite hardy flowers as staged by the chief cultivators. We trust the forthcoming display will be still larger, and hope especially that competitors from the midlands and the north will have a share in the honours provided. Both the weather and the date of the Show are favourable for northern growers whose plants cannot but be in an advanced state, and may, it is hoped, by a little coaxing be had "in" by the day of exhibition, which is five days later than the show of last year. Last year it may be remembered that the best of the southern flowers had been accelerated by the plants having been placed under glass; this year it is probable that they will have to be retarded. A good chance is this year certainly afforded to the northerners, and we trust they will make the best of it. The prizes are numerous and liberal, and are open to all exhibitors, whether subscribers or not. Schedules can be obtained from the Hon. Sec., Mr. E. S. Dodwell, 11, Chatham Terrace, Larkhall Rise, Clapham, S.W.

—WITH the consent of the authorities of the Royal Botanical Society of Manchester, members of the **NATIONAL ROSE SOCIETY** residing in the north of England can have two tickets for the Manchester Show and one for the Crystal Palace, instead of one for Manchester and two for the Palace.

—AT a Committee Meeting of the **WEST OF ENGLAND ROSE SHOW** held on May 8th it was agreed that the entry fee, £2, to be paid by exhibitors in class A 2 (open to nurserymen not residing in Herefordshire) should be cancelled in the schedule lately issued to the public.

—THE Scottish Horticultural Association, which continues doing useful and practical work, has agreed to offer prizes of £3, £2, £1, and 10s., for **COMPETITION BY UNDER GARDENERS**, members of the Association, for the best four plans of kitchen gardens, with fruit, plant, and forcing houses, gardener's house, and offices complete. The plans to be drawn to a scale of one-twelfth of an inch to the foot. The whole area included not to exceed five acres; three and a half acres being devoted to the kitchen garden including outside slips, and one and a half acre to the houses, offices, and yards. Sections and elevations of the stipulated glass erections, showing the arrangements for heating and ventilating, to be given on a separate sheet, to the scale of one-fourth of an inch to the foot.

—WE have received from a correspondent at Bognor flowers of a double variety of the common **CUCKOO FLOWER** (*Cardamine pratensis*), which grows wild in his neighbourhood. Our correspondent states—"The variety grows in some abundance in certain localities, and often by the side of the single variety. The habit of the plant is much the same as that of the latter, and the leaves on the flower stems and also the larger leaves are alike. In one respect the double variety differs from the single—viz., in the flowers being often produced, not in a cluster on the top of the stem, but throughout the greater part of its length, after the manner of the *Rockets*."

The flowers are quite double, pale lilac in colour, and very attractive. It is not common.

— **Messrs. Dick Radclyffe & Co.** exhibit at the **PARIS EXHIBITION** a fernery. It is attached to the boudoir of the Royal pavilion provided for the use of His Royal Highness the Prince of Wales. The same firm exhibit a window conservatory and aquarium, and four cases of dried natural flowers.

— **MR. L. I. KNOX** writes to us—"On the 8th of this month my gardener in my presence gathered two large opening buds and one full-blown **GLOIRE DE DIJON** ROSE growing on a wooden trellis against the wall of my house at Caversham, Oxon, which has a western aspect. There are many buds largely developed ready to succeed them next week."

— **IN** reply to some correspondents **Mr. D. Sewell** writes as follows on **STOCKS FOR ROSES**:—"I consider that no law can be laid down as to the best stocks for Roses, as the habit of the Rose has so much to do with the success, as well as soil and situation, which can only be acquired by practical experience. I work upon standard, Briar, Manetti, and seedling, and grow a few Roses on their own roots. I prick into the soil old cow manure in the spring that has been used for Cucumbers the previous summer, as my soil is a light loam upon gravel, and then supply the Roses with weak liquid manure at the root during the growing season; I also give copious syringings."

— It is singular that the well-known and deservedly popular bedding **GERANIUM VESUVIUS** should be sportive while other varieties are generally so constant. Amongst the sports that we have seen from the old variety, and all good, are Wonderful, semi-double; White Vesuvius, pure white; and striped Salmon Vesuvius, and a double striped Vesuvius. We recently saw at Chiswick a truss of the single striped variety producing flowers quite different from any of the varieties alluded to; they were oculated and exactly resembled flowers of the good old variety **Amelina Griseau**. Trusses of the double striped variety alluded to have been sent to us by **Mr. Knight**, North Trade Nursery, Battle, Sussex. The trusses are very fine, each have upwards of forty pips and unexpanded buds; the flowers being semi-double, bright orange scarlet in colour, the petals being further clearly striped with white.

— **ON** the wall of climbers at Chiswick **PIPTANTHUS NEPALENSIS** has lately been flowering very freely, and its large golden Cytisus-like flowers were very bright and attractive. In sheltered situations in the southern counties this plant is usually grown as a shrub, but is evidently well adapted for training to a wall from 6 to 9 feet high. Flowering chiefly, indeed almost entirely, at the extreme ends of the branches, it must not be pruned. It is a very ornamental flowering shrub, and was introduced from Nepal in 1821; yet, although it has been in English nurseries and gardens so long, it is by no means common. It is sometimes called **Anagryis indica**.

— **ON** the **ROCKWORK** formed near the large vineery at Chiswick the plants have become established with noteworthy rapidity. This is the result of the work having been well done. Too often in forming rockwork a heap of stones, &c., is formed, and the soil is "worked-in" amongst them. This is just the wrong way of doing the work, and always results in disappointment. A deep and firm foundation of good soil is the first essential to success; the stones can then be embedded in it, and the interstices afterwards be filled-in with free light soil for planting in. Amongst the plants we recently saw flowering in the Chiswick rockery were **Cheiranthus alpinus**, very gay; **Saxifraga Wallisii** from Messrs. Dickson & Co., Edinburgh, a fine rock plant, larger than **S. geranioides**; **Ranunculus amplexicaulis**, distinct and pleasing; **Narcissus Bulbocodium**, very bright and attractive; **Iberis petraea**, a little gem; **Pulmonaria sibirica**, with pretty marbled foliage and blue and pink flowers; **Veronica serpyllifolia** var. *alpina*, a lowly and lovely rock plant; **Veronica pectinata**, brighter than **V. Chamædis**, **Gentiana verna**, **Alyssum**, and **Alpine Phloxes**. Thanks to **Mr. Webb** for giving the stone, and to **Mr. Barron** for turning it to such good account, also to many friends who have sent plants, the rockwork at Chiswick will shortly not only be attractive, but, like other features of this experimental garden, will be instructive.

— **LAST** Sunday was what is known amongst the working classes of London as "**CHESTNUT SUNDAY**," so called as being the first in the season on which the Chestnut trees which form

the noble avenue of Bushey Park Royal demesne are in their best bloom. Large numbers went by rail and river to admire the famous trees which now present a magnificent appearance, both the flowers and foliage being unusually fine this year.

— **MR. LEGG**, who managed **Mr. Ralli's** garden at Cleve land House so successfully, and who relinquished his charge there last autumn, has been appointed gardener to **A. Southard**, Esq., Fern Lodge, Ascot. The garden is of moderate size, and is much cherished by its owner, who has made provision to have it conducted well. When a liberal employer and able gardener both work to the same end good results are sure to follow.

— **NEAR** the coast of Suffolk are the ruins of Dunwich Priory, and in the clefts of those ruins grows the **DUNWICH ROSE**. This Rose is said to have been brought by monks from Normandy many centuries since, and that it will grow nowhere else. It degenerates when cultivated and resembles the Scotch Rose. It is a powerfully scented flower, rambles over the surfaces of the cliffs, and is known to botanists as **Rosa arvensis**. The flower has a powerful scent; is a single blossom of purest white velvet, with anthers of black or brown, a smooth brown stem with long sharp thorns, and smooth pointed dark green leaves growing like the Blackberry leaves.

WORK FOR THE WEEK.

KITCHEN GARDEN.

It is important that plants of all kinds which have passed their season of usefulness be promptly removed, as they are not only unsightly in appearance, but they also impoverish the soil. Old stems of Brassicas will no longer be required to afford sprouts, as their place will be taken by early Cabbages, and Winter Spinach will be succeeded by spring-sown produce. Remove, therefore, every crop of those descriptions when of no further use, manuring and preparing for other crops without delay. Early Cabbage ground will answer for Celery or late Peas, similar remarks applying to ground previously occupied by Broccoli and Winter Greens. A good breadth of Peas for use in late summer should now be sown, also Broad Beans. Make successional sowings of Turnips. In hot dry soils they should be grown on a north border. Early-sown crops should be attended to in thinning and watering. If fly appears upon Turnips or other crops dust them with quick-lime or dry wood ashes. Prick off young plants of Broccoli, Cauliflowers, Brussels Sprouts, Savoy, &c., when they are large enough for the purpose. The earliest-sown Brussels Sprouts should be planted out so soon as ready, allowing them plenty of room—a yard distance every way. Sow Cauliflower for autumn use. Lettuce sow in drills, thin early, avoiding transplanting. Continue making successional sowings of Radishes and small saladings. Spinach to maintain a supply should be sown every fortnight; in dry soils sow in a north border. If Endive be wanted early a small sowing may now be made. The seed should be sown where the plants are to remain; thin them to 15 inches distance apart every way. Round-leaved Batavian and Green-curbed are the best. Asparagus will require cutting daily. We prefer to cut with a small portion of blanched stem, it having a better appearance, but care is necessary so as not to destroy advancing heads. If it is necessary to cut from roots intended for forcing the cutting must not be prolonged, or the roots will be too much weakened for that kind of work. The benefit of a mulch of half-decayed manure to all kinds of vegetables is very marked in dry soils and in hot weather whatever the soil may be. The mulching arrests evaporation, preserving an equality of moisture at the roots so essential to the production of vegetables of high quality.

FLOWER GARDEN.

Seeds of biennials should now be sown. Such plants as Canterbury Bells in blue, white, and rose varieties, with doubles of the two former colours, and the superior calycanthema and its white variety, ought to have a place in every garden. Indian Pinks too make a very fine display. Honesty, purple and white, are very gay in early summer, and their seed pods being semi-transparent are pretty ornaments in a dried state. *Oenothera Lamarckiana* is a stately plant; *O. biennis* very showy. Rockets are free-flowering and sweet-scented. Some perennials are best treated as biennials, such as Wallflowers, which are always acceptable from their fragrance, and should be grown in quantity; also Sweet William, than which few plants are more effective in clumps or masses in their season. Seeds of perennials should be sown. Propagation by seed is a ready mode of securing a stock of plants where plants of this kind are required in quantity. It is desirable to have an herbaceous border, and a good beginning may be made by raising plants from seed. Foremost are *Mr. Douglas's* superb *Columbines*—viz., *Aquilegia cærulea hybrida* and *A. californica hybrida*, all the *Columbines* being fine border plants flowering in early summer. The old-fashioned Rose Campion (*Agrostemma coronaria*) suits any soil. *Alströmarias* should be sown where they are to remain, their flowers are valuable for cutting. *Anchusa*

italica is a fine Borage-like plant. *Allium alpinum*, *Anthericum Liliago*, *A. ramosum*, *Aster alpinus*, *A. tenuifolius*, *Astragalus uralensis*, *A. narbonensis*, *Campanula lactiflora*, *C. macrantha*, *Cynoglossum apenninum*, *Delphinium formosum*, *D. grandiflorum chinense*, *D. imperiale*, *Gentiana asclepiadea*, *G. lutea*, *Gypsophila paniculata*, *Iris pulchella*, *I. sibirica*, *Liatris spicata*, *Libertia ixioides*, *Lychnis Viscaria*, *Lythrum roseum superbum*, *Meconopsis cambrica*, *Papaver nudicaule*, *Senecio Doronicum*, *Silene pulchra*, *S. regia*, *Sparaxis pulcherrima*, *S. Thunbergi*, *Trachelium cæruleum*, *Verbena venosa*, and *Xerophyllum asphodeloides* are all effective border plants. Those, with *Potentilla* (single and double), *Phlox decussata*, *Pentstemon*, *Lychnis Haageana hybrida*, *Geum atrosanguineum fl. pleno*, *G. coccineum*, *Digitalis*, *Antirrhinum*, and *Pyrethrum* double vars. should not be omitted; they are all more or less ornamental, readily raised in light soil in a sheltered border, covering each kind with fine soil to the depth of the diameter of the seeds or a little more, keeping the ground moist, pricking out the seedlings when large enough to handle, and transferring them to their permanent quarters in autumn or early spring. *Polyanthuses*, *Daisies*, *Anemones*, *Auriculas*, *Myosotis*, and other spring flowers should be raised in quantity, there being few places which do not afford appropriate situations for these attractive flowers. Rock plants may be raised from seed by sowing it in fine soil in a shady border, but not in the drip of trees, but preferably in pans in a cold frame, as the soil can be kept more uniformly moist until the seedlings are well up and in a fit state to transplant in a north border. Some that may be raised from seed are *Alyssum saxatile compactum*, *A. utriculatum*, *Antennaria dioica minor*, *Arabis alpina*, *Arenaria purpurascens*, *Aubrietia græca*, *A. purpurea grandiflora*, *Calandrinia umbellata*, *Campanula carpatica* and its variety *alba*, *C. pusilla*, *Dianthus neglectus*, *Erinus alpinus*, *Gentiana gelida*, *G. verna*, *Helianthemum piloselloides*, *H. tuberaria*, *Jasione humilis*, *Linaria alpina*, *L. pyrenaica*, *Linum flavum*, *L. salsoloides*, *Lychnis alpina*, *Orobis alpestris*, *Ramondia pyrenaica*; *Saxifragas* *Aizoon minor*, *affinis*, *ambigua*, *controversa*, and *rosularia*; *Sempervivum Bolli*, *Silene caucasica*, *S. Schafta*, *Solidago cambrica*, *Veronica saxatilis*, and *V. prostrata*. We know many prefer to raise their plants from seeds, and have not "gone in" for plants of this class from the supposed difficulty in securing stock in quantity. There is really no difficulty in raising a quantity of both herbaceous and Alpine plants from seed, which will afford a fine display at a much less cost than by purchasing plants. One of the greatest errors in herbaceous borders and rockeries is the planting in medley fashion single plants dotted here and there without any idea of producing effect—bits of blue or yellow, &c., instead of bold masses, as would be the case where, when the space admits of duplicates, planting the several plants together so as to form a group. In the case of rock plants it is the masses that tell, and not bits.

FRUIT HOUSES.

Vines.—Red spider is sure to come when the days are bright and the nights dry. One thing relating to this pest we have noticed, and that is its attacks are more certain when the roots of the Vines are confined to inside borders, and there is always a difference between those Vines with the borders part within and part outside the house than those with borders entirely outside. This points to the importance of affording water to inside borders liberally—not mere surface watering, but sufficient to reach the lowest roots. This thorough moisture at the roots and a plentiful supply of moisture in the house are the best means of avoiding red spider. If, however, the pest puts in an appearance painting the hot-water pipes with sulphur brought to the consistency of cream by being mixed with milk is the best remedy. We first apply it to the return pipes, and if that does not answer we paint the flows, and those being heated to 160° fumes are given off fatal to the spider. Some cultivators resort to the syringe. It will wash off the pest, and is equally destructive to the bloom of the Grapes—in fact fatal to good finish. Sponging and brushing the leaves is a tedious and at best but a partial means of riddance, sulphuring the pipes being by far the best remedy. Vines started early in January are now ripening. Though a rather drier atmosphere is desirable it is best secured by free ventilation, leaving a chink of air on at the top of the house constantly and admitting it liberally whenever the weather is favourable, as nothing contributes more to good finish than a good circulation of warm air after the Grapes commence colouring. The border if inside must have a thorough watering, and a mulch of half-decayed manure will secure moisture sufficient for the perfection of the crop; yet even when the fruit is ripe Vines must not suffer by lack of water at the roots. The temperature should be 70° at night, 5° less on cold nights, admitting air at 75° and increasing the heat to 85° or 90° with sun and full ventilation, reducing the ventilation at 80°, closing all but the small portion at the top of the house. Maintain good atmospheric moisture by damping the house two or three times a day, and keep the evaporation troughs replenished with liquid manure. Muscats are ripening and must not lack moisture at the roots: apply liquid manure if the crop be heavy and the Vines not over-luxuriant. The inside borders must be examined every week, and if moisture be required give it liberally and warm (90°). Muscats should have a temperature 5° higher all through than

Hamburgs, especially when ripening, if they are to have the fine amber colour so characteristic of thorough ripeness. Attend to stopping, removing laterals, tying, and thinning in succession houses. Late Vines, push forward as speedily as possible, maintaining a night temperature after the bunches show (which will be the case now with those started naturally—i.e., with the aid of solar heat only) of 65° to 60° at night, 70° to 75° by day, advancing to 85° from sun heat, admitting a little air at 70°, closing at 75°, and if the temperature afterwards advance to 80° all the better, as less artificial heat will be required at night. Upon the temperatures named rise 5° by the time the Vines are in flower, maintaining a good moisture but rather free ventilation whilst in bloom, and go over shy settlers with a camel's-hair brush when the pollen is ripe. Remove duplicate shoots, and stop those remaining two or three joints beyond the bunch. Duplicate bunches must be removed unflinchingly so soon as a selection can be made of the best in shape. Early-forced Vines with the Grapes ripe, having had fermenting materials applied to the borders, should have a part of it removed, leaving sufficient for a good mulch; and if, as not unfrequently occurs, the roots are active in the lower part of the fermenting material, a little fresh litter should be placed over the surface to protect them from the atmosphere; besides, it gives the border a neat appearance. Houses in which the Grapes are ripe will only need fire heat to keep the temperature at about 60° at night, ventilating freely by day.

Peaches and Nectarines.—Those in the house started early in January have stoned and must have abundance of water, with a mulch of short manure to prevent or lessen evaporation. Outside borders are often neglected—they become too dry. Examine them, give a good watering if necessary and mulch with short manure. Continue syringing the trees twice a day, and if red spider cannot be kept under by that means apply a solution of soft soap, 2 ozs. to the gallon, with a garden engine upon a calm evening. Attend to tying-in the shoots, stopping all laterals at the first joint, and pinching out the points of any shoots for next year's bearing exceeding a foot in length. If not wanted to push the fruit, which it is well to bear in mind cannot be done without risking the future welfare of the trees, the temperature may be maintained at 65° to 60° at night, 70° to 75° by day, increasing the ventilation at 70°, having it full at 75° if there is likely to be an advance, closing at 75°. With sun 80° to 85° or more may be allowed. See that the shoots in the succession houses are tied-in as they advance, thinning the fruit, ventilating early and thoroughly, and syringing morning and afternoon, examining the borders at least weekly, and applying water thoroughly when it is needed.

Cucumbers.—Plants which have been bearing through the winter now show signs of weakness and make short stunted fruit. Such plants may be renovated by cutting them well in and removing the soil from among the roots and replacing with fresh, but they never afford such satisfactory results as are obtained from young plants. We prefer growing our Cucumbers for summer use in pits or frames. Two or three three-light frames will afford a large number of fruits daily without fail from now up to October. This liberates the house for Melons, which may be planted at once. Young plants at all weak will be much assisted by the removal of the first fruits and male blossoms, stopping at the third or fourth joint, removing all superfluous shoots. Syringe at about 4 P.M. moderately, keeping the floors well damped. Shade only to prevent the foliage flagging. Pits and frames cleared of bedding plants may be occupied with Cucumbers. Very slight heat only is necessary; spent litter from Seakale, &c., with the addition of a little fresh manure will give all the heat required.

PLANT HOUSES.

Stove.—*Tabernaemontanas* are making free growths and should be encouraged by gentle syringing, but avoid making the soil sodden by too frequent watering, as they are rather impatient of water at the roots, requiring a much less quantity than many other stove plants, and on this account probably are less seen than their fine deliciously scented flowers merit. They are apt to cast the flower buds, especially if grown in too much heat. They succeed well in a cool stove. *Bougainvillea glabra*, *Allamandas*, and *Clerodendron Balfouri* are fine conservatory plants, and will now, if they have been started early, be in a forward state for bloom. We allude to those started in February and which have been brought on gently, as when brought on quickly in a high temperature they do not stand well in a conservatory. They should be flowered slowly and removed when the flowers are expanding, and they then last a long time, but must be kept from draughts. *Ixoras* are coming into flower. If intended for the conservatory they should have air moderately, be kept rather cooler, and have all the light possible. In that way they will stand much better than plants brought into flower in a hot, moist, close atmosphere. Similar remarks apply to *Stephanotis*, which is one of the most acceptable of plants for conservatory decoration when in bloom. Vines intended for late summer flowering—and very useful they are—should not be allowed to flower now but be kept stopped, which will induce a compact habit and a profusion of bloom. They should have a light moderately airy situation and be kept well supplied with water, potting them if required. Tuberous-rooted *Begonias* started early are now in bloom, and

fine they are for conservatory decoration. They should have a rather cooler and more airy situation before removal. Begonias for winter flowering, cuttings of which were inserted some time ago, pot off and grow on in a light airy position. Wage incessant war against mealy bug, scale, and other insect pests, for which there is no remedy equal to the "catch-and-kill" system. Scale is easily picked off with a budding-knife handle, and mealy bug may be kept under by frequent examination of the plants subject to its attacks; but once let those pests get ahead and nothing but disfigurement of the plants results from an attempt at cleansing them. Syringe well morning and afternoon, damping at noon, closing early at 80° so as to dispense as much as possible with fire heat, which will still be necessary to keep the temperature from falling below 65° in the morning.

TRADE CATALOGUES RECEIVED.

Dick Radcliffe & Co., 129, High Holborn, London.—*General Catalogue of Plants and Garden Requisites.*
Thomas Bunyard & Sons, Maidstone.—*Catalogue of Bedding-out Plants, Roses, Ferns, &c.*
Robert Wagstaffe, Russell Street Ironworks, Hyde, near Manchester.—*Prospectus of Cylindrical Boilers.*

TO CORRESPONDENTS.

. All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense. Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

BOOKS (R. C. Tucker).—We know of no book such as you describe. Brown's "Forester" is the most practical work for your purpose.

ADDRESS (H. G.).—The Secretary of the Oxford Rose Society is Mr. Edwin Thorne, Laburnum Cottage, Woodstock Road, Oxford.

BROCCOLI PLANTS (C. Ross).—Apply to any of the market gardeners who supply them retail.

MEDLAR (X.).—The specimen sent is a spray of the Medlar.

VICTOR MEMORIAL PRIZES (An Old Subscriber).—The prizes are offered for competition by amateurs and gardeners only, not by nurserymen.

EXHIBITING DELPHINIUMS (Tweedside).—We think you can compete with semi-double Delphiniums when it is mentioned in the prize list double. At any rate, semi-double flowers are not single, and we think ought not to be excluded from the class you mention.

WINDOW FLOWERS (J. Watson).—"Window Gardening for the Many" is published at our office. You can have it free by post, if you enclose twelve postage stamps.

SAPONARIA OCYMOIDES FAILING (A. Boyle).—This, like many other hardy perennials, suffers much in a wet winter if planted in a low damp situation. It answers best when trailing over masses of rock with plenty of well-drained rich gritty loam packed in behind and among the rocks for its roots. Failing the rocks you might easily contrive some little mounds for it, over which it would soon spread and form soft green cushions enriched with a mass of rosy flowers at this season of the year.

AGED SAVIN (L. C. H. E.).—The placing of the soil over the roots 18 inches deep would only tend to make matters worse. Remove all but an inch or two and leave the rest to Nature. We apprehend the shrub is, however, succumbing to age and will gradually decay, not unlikely go off in a few years. The shrub must be a fine one, having been a "large plant forty-eight years ago, and now 60 yards in circumference," a grand specimen. Our correspondent wishes to know if the Savin (*Juniperus Sabina*) is generally a long-lived plant. We should be obliged by information on the subject; but our experience points to its not surviving so long as many shrubs, probably from its being an Alpine, and in this country planted in low moist situations or rich soil, where it grows freely and soon decays.

CULTURE OF CRASSULAS (Eve).—You do not say what convenience you have for growing them nor what the kinds are. We presume you possess a greenhouse, and that the species is *Crassula (Kalosanthes) coccinea*. Take cuttings in August, shoots that have not flowered, and insert them singly in small pots in sandy soil, watering carefully. They strike freely and may be kept on shelves near the glass in a house from which frost is excluded, giving water only to maintain the foliage from shrivelling. When they commence growth in spring stop them at 3 or 4 inches from the soil, taking off a few of the lower leaves to facilitate their breaking, and when the young shoots are formed thin them to three or five upon a plant according to its strength. The young shoots being 3 inches in length shift the plants into pots 5 inches in diameter, and again in May or early June into 7-inch pots. In July place them outdoors in a warm situation at the front of a south wall, the pots being plunged in ashes. Water sufficiently only to maintain the plants fresh, avoiding making the soil sodden. Remove the plants to a light airy position in the greenhouse in late September. They will flower the following year. After flowering cut each shoot down to within an inch of its base. Disbud as before to three shoots on each branch. Repot in the same size of pot when the shoots are well broken, reducing the ball about a third, and in February of the following year shift into pots 2 to 4 inches larger in diameter according to the vigour of the plants. They should be freely watered whilst in growth, or from April to the middle of June, when place them outdoors and return them to the greenhouse as before. The following year they will be good specimens. The plants bloom from the one-year-old wood only, therefore two sets of plants are required.

All the shoots, however, do not flower, but we elect to cut down all the shoots after flowering whether they have flowered or not, thereby securing a regular break and bloom. Equal parts of sandy fibrous loam and peat, half a part of old cow dung or leaf soil, and one-sixth each of silver sand, pieces of charcoal, and broken pots, will grow them well, providing efficient drainage. If cuttings are inserted in July and not stopped, each plant so produced will with good management produce a terminal head of bloom in the summer following. A number of such small plants are often very valuable for decorative purposes.

VINE CUTTINGS (W. E. B.).—Pot them off singly when they have formed roots into 5 or 6-inch pots, and place them in the closest and warmest part of the greenhouse, shading them from sun until the potting is recovered from, after which they cannot have too much light. They should be sprinkled overhead morning and evening; and when the pots fill with roots, but before they become closely matted, shift the Vines into 9-inch pots. Apply liquid manure when the canes are growing freely, and allow all the laterals to grow at will. In September lessen the supply of water, affording no more than to prevent flagging, and at the end of the month place them outdoors in front of a south wall. When the leaves have fallen remove the Vines to a cool house, and in December cut them back to two eyes. Place them in the greenhouse in February, and when the shoots are 3 inches long turn the Vines out of the pots and remove as much of the old soil as possible from among the roots, and return them to the same size of pot. When this fills with roots again transfer to a 12 or 13-inch pot, and apply liquid manure when the roots are active in the fresh compost. Rub off one of the shoots, retaining one only to each Vine, and train this at about 1 foot distance from the glass. Stop the laterals at the second joint until the cane is 9 feet in length, when take out its point and allow the laterals to grow at will after they have been stopped at the second leaf, removing them altogether when the leaves fall. If you succeed in ripening the wood thoroughly you ought to have fruit the following year. Do not replot during the fruiting season, but top-dress. The Vines, after having been shortened in December to 5 or 6 feet, may be coiled around stakes or trained beneath the roof, being careful to depress the cane until the eyes have broken throughout its length, when it may be placed in position.

MILDEW ON VINES (R. A. W., Ipswich).—We never saw a worse case of mildew. All the bunches so severely infested as the one you have sent must be promptly cut off and burnt, and the others, together with the foliage affected, must be thoroughly dusted with flowers of sulphur, which, after remaining on for a few days, must be washed off with the syringe. Keep the atmosphere of your house drier and admit air more freely, and especially earlier in the morning. Unless you apply the remedy promptly and thoroughly your crop will be ruined. Leave a little ventilation at the top of the house all night. Keep the roots of the Vines moist; if they are in an inside border they are probably too dry.

VINES CROPPING INDIFFERENTLY (X. F.).—The most likely cause of the deficiency of crop is over-luxuriance, induced by the rich border material, aggravated by undue moisture, resulting in unripe wood. We should restrict the growth, stopping two joints beyond the fruit shoots not fruiting two joints beyond the first tendrils (clasper), and stop all growths from the uppermost lateral at the first leaf, removing all laterals below at every joint except the two lowest, which stop at the first leaf and repeat if necessary. The shoots should not be nearer to each other than 18 inches, so as to have the foliage well exposed to light, overcrowding alone often being fatal to fruitfulness. When the fruit commences colouring give the border a good watering and admit air freely, maintaining the temperature at 70° to 65° at night, 75° by day, increasing the ventilation at that, having full ventilation on at 85°, close at 75°—if it rise to 80° all the better; continuing these temperatures until the wood is brown and hard, not giving any more water to the border except to prevent flagging. A little air should be let on at night at the top of the house. If the house is planted with Muecata the temperatures should be 5° higher. When the wood becomes thoroughly ripe admit air very freely, and allow the temperature to fall to 60° at night until the Grapes are cut, and then admit all the air practicable day and night. Get the wood well ripened and you will have abundance of Grapes.

AMATEUR (Crece).—An amateur is considered to be a person who pursues some occupation for the pleasure it affords him.

SLATE versus WOOD SHELVES (Old Subscriber).—Slate is preferable to wood shelves, being more durable; the former being solid hold more moisture, consequently are cooler and better suited to hardwooded plants than lath wood shelves, but the latter answer very well both for hard or softwooded plants. No one in these days of cheap glass would tolerate squares 6 by 4½ inches. Ours are 1 foot 9 inches by 13 inches, 21 oz. thirds quality, and there is no scorching; but we shade the greenhouse from bright sun from April to September inclusive. In winter plants cannot have too much light. We have sheet glass 32 oz. in squares 2 feet 6 inches by 18 inches, and no scorching takes place; also polished plate in squares 4 feet by 3 feet 6 inches, and there is no scorching beneath any. Hartley's rolled patent answers well; we have it in squares much larger than those you name. We prefer 21 oz. thirds for general purposes, the squares not less than 15 by 9 inches, and not exceeding twice that size.

PERNS FOR GLASS CASE (Jdm).—*Lomaria L'Hermieri* for centre, *Adiantum Luddemannianum*, *Pteris serrulata* Leyl; or *Todea pellucida*, *T. Wilkesiana*, and *T. superba*. The last will ultimately become too large, but is very desirable in a small state for such a purpose.

KNOBS ON FRENCH BEAN ROOTS (Frank).—The roots are perfectly healthy. The knobs are common to all the podbearers. The creeper is, judging from the smashed specimen, *Manettia micans*. A glazier would probably tell you where you could get the diamond re-set.

MOSS IN WATERCRESS BED (T. R. C.).—It is due to poverty, and often from too great depth of water; 6 inches depth should be a maximum, 4 inches being deep enough. Give a dressing of thoroughly decomposed cow dung, and press it down with a board with a long handle fixed to it obliquely, and repeat after each cutting or about every three weeks during the growing season. A large barrowful is a sufficient dressing for 100 square yards.

SOOT WATER (Triops).—Tie up a peck of soot in a coarse bag or piece of old canvas and suspend it in a tub containing thirty or forty gallons of water. In a week you will have a stimulant of great value for all quick-growing softwooded plants. If you immerse a large lump of quicklime in the tub the soot water will become as clear as sherry. The solution will generally be sufficiently strong if diluted with half or more than half of pure water at the time of using it. As you take water out of the tub fill it up again. The bag of soot will last a considerable time, but of course th

longer it is in use the weaker the solution will be, and the less the need of diluting it. Liquid manure is not necessary for plants until the pots in which they are to flower become filled with roots; it is then of great value, indeed indispensable for the production of healthy foliage and fine and highly coloured flowers.

APPLE AND PEAR LEAVES (*Inquirer*).—They are blistered and otherwise disfigured by exposure to violent transitions from heat to cold, and *vice-versa*.

HORSE DROPPINGS FOR FLOWER BEDS (*G. S.*).—They may be spread on the surface of the beds an inch or more thick, according as the soil is rich or poor, and be forked-in. Geraniums usually flower sufficiently freely without much manure. Unless your soil is very strong the addition of leaf soil would not be an advantage. Your other question will be answered next week.

APHIS ON PEACH TREES (*E. R.*).—Pick off the very much curled and crumpled leaves. Boil 4 ozs. of quassia chips in a gallon of water for fifteen minutes and add to it four gallons of pure water, mixing it also with a little tobacco water, and with this syringe the trees. Tobacco water and quassia chips can be had from most large druggists and nurserymen. Frequent syringings with pure water are beneficial.

HEATING SMALL GREENHOUSE (*Amateur*).—A boiler and pipes form the best and cleanest mode of heating; a small stove with a flue to carry the smoke into the open air will also answer and is economical.

GREEN SLIME ON PONDS (*A Subscriber*).—Green slime has been more prevalent than usual this spring. Let off the water from your pool and scrub off the slime from the rocks with a broom, refill, and when the pool becomes clear you will have very little more trouble this season. Water snails do not appear to touch it, for we have lately been much troubled with it in a pool abounding with them. Ducks are the best scavengers for a pond, but they make clean work of flowers and weeds, so that to admit them to a pool of choice aquatics is out of the question. Notes on sub-tropical bedding will shortly be published.

LIQUID MANURE FOR TRICOLOR PELARGONIUMS (*W. G.*).—We consider sheep droppings, when they can be had, the best, one peck to thirty gallons of water. Failing the sheep droppings a peck of soot to thirty gallons of water. To impart colour to the foliage nothing does so much as exposure of the plants to light, keeping them gently growing, affording shade as that of tiffany for a few hours in the hottest part of the day. When the plants are very luxuriant, kept close, moist, and shaded, the foliage is generally badly coloured.

NAMES OF FRUITS (*Ramallo*).—1, Dumelow's Seedling; 2, Barton Free-bearing.

NAMES OF PLANTS (*E. H.*).—*Staphylea pinnata*. (*W. Hemshaw*).—*Veronica hederifolia*.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

THE REARING OF CALVES.

THIS is a subject of considerable importance on every home farm, and the birth of a calf, always an interesting event, should be anticipated as nearly as possible to the time at which it will happen; and we will suppose, as it certainly ought to be, that a register is kept giving an account of when each cow is due to calve. There is, however, a little uncertainty as to the exact date, because it often happens the period of gestation is prolonged for a week or two on the birth of a bull calf. This fact, however, does not do away with, but rather adds to the propriety of continual attention to the cow previous to parturition, for many calves are lost and serious injury often arises when the herdsmen or other parties understanding the matter are not present at the birth of the calf. It should, however, be remembered that very few cases require the presence of a veterinary or any practised manager, because Nature provides nearly all the requisites in ordinary cases except those of wrong presentation and some others to which practical men are accustomed. As soon as the calf is born, in ordinary cases it will only require the usual attention of freeing it from the usual incumbrances; it will then be licked by the mother, during which process the cow should be milked nearly dry, leaving the calf, as soon as it rises and is firm on its feet, to suck all the remaining milk. The peculiar character and condition of the milk at this time is one of the great essentials which Nature has provided to establish the health and strength of the calf. After the successful birth of the calf it will be necessary to consider for what purpose it is to be reared and kept—whether the cow calves are to be reared for future dairy purposes, or whether together with the bull calves they are to be reared with the object of being fed and fattened for slaughter at an early age; and, on the other hand, whether the calves will be only retained to live upon the mother until they are of sufficient size and quality to be sold and killed for veal. Our subject is therefore divided into three heads or objects, and we will first speak of the calves to be reared as cows for dairy purposes.

In rearing for dairy purposes the calf may be allowed to suck

the cow and take only a small portion of the milk for several days, by the milkman taking the milk from two or three teats and then allowing the calf to take all the remainder. This, for the advantage of the cow and calf also, is especially necessary in the case of heifers with their first calf; and in their case the calves may continue to live upon the milk for ten days or a fortnight after the calves are taken away from the cows. They should have new milk fresh from the cow whilst it is warm; and to learn them to take it at first as drink the dairyman should raise the bucket of milk and introduce his two fingers into the mouth of the calf, and then dip his hand and the calf's mouth together into the milk. To induce the calf the more readily to take to drink in this way it should be kept rather short of milk at first, or rather offer the milk at longer intervals, as hunger goes far to assist any efforts made to learn the calf to drink. After the calf has learned to drink it will still require attention, for at the end of a week or ten days, instead of new milk, a mixture of new and skimmed milk may be used, and after another week or ten days the allowance may be of skimmed milk only, taking care, however, always to have it slightly heated to about the temperature of new milk. In giving the milk it will be necessary to the well-doing of the calf to prevent its swallowing the milk in a hurried and hasty manner. There are various means used to prevent their drinking too fast, particularly some recent inventions as buckets and feeders in which artificial teats are used. They are not yet in general use, and require further experience before being recommended with confidence. The advantage, however, cannot be denied of the calf's drinking slowly instead of being allowed to swallow the milk hastily without time for admixture with the saliva, otherwise calves are often reduced into low condition, with hollow sides and large bellies, and it is in this condition when so many calves are attacked by diarrhoea. In such cases, and when some calves do not take to eat so soon as they ought, we have found it answer a good purpose to give them three times a day balls about the size of a walnut composed of oatmeal and cakemeal wet up with milk. After a few times given they will eat it out of the dairyman's hand, and thus may be led to feed from hand to the trough by dropping the hand into trough with such food as it may be required to give them. There is nothing we have found so good as carrots or cabbage at the time of year, afterwards mangolds, these roots being grated and mixed with meal, and eventually chaff of either hay or straw or both in admixture. But to learn them to eat hay or green fodder it is well to tie it up in small bundles and allow it to dangle. They will, perhaps, only play with it at first, but soon learn to eat it.

We must now allude to the calf-boxes or pens, and this is oftentimes quite a primitive affair, and when not properly arranged is often the cause of ill health. We prefer to have the calves tied and kept separately for two reasons: If anything is wrong in health they can be treated individually, and when they are kept two or more in a pen they are apt to suck each other, and this often produces navel ill and is otherwise disadvantageous. We often find it recommended that pens with brick, stone, or concrete floors should be provided, and the pens washed out every now and then as occasion may require. We, however, prefer an earth floor so as to entirely absorb all the urine, and then to be littered with straw, wheat straw being best, as cleanliness requires. The straw, however, when served in trusses should be cut at the bonds with a thatcher's knife; it will then be short enough to settle down firm, and may be allowed to accumulate for a week or two especially if soft yellow sand is used and strewed over the pens upon the straw every other day. The pens will then be pure and free from that peculiar sour smell generally arising from pens whilst the calves live chiefly upon milk, and only attended to in the ordinary way, for calves void a large amount of urine, and unless it is absorbed by earth it is rarely they get either a dry bed or a healthy one. Living in an impure atmosphere is one of the most fruitful causes of disease in calves, and is often the cause of severe attacks of diarrhoea. This may, however, be produced from a variety of causes, such as the food of the cows, the food of the calves themselves, and irregular feeding with bad nursing.

Remedies may be required for the scour in calves—for instance, if the animal refuses food it should be drenched with oatmeal gruel containing a table-spoonful of tincture of rhubarb and a teaspoonful of laudanum and a little prepared chalk. It must be admitted, however, that any disease of this kind may be attributed to causes perhaps very diverse and trivial, but it may also be taken as correct that unless the cause can be ascertained the removal of the effect will be very difficult.

We cannot advise the rearing of calves at any particular time of the year in preference, having reared them in every month during the year. It generally happens that more calves are born in February, March, and April in consequence of the cows coming into profit at these times, therefore any argument we have advanced will apply with greater force in rearing calves in these months. After the calves are strong enough and healthy enough to graze in the paddocks they will still require constant attention, and it is particularly desirable that they should have a shed to resort to at night time, and that the shed should be so constructed that the animals may be shut-in at night time let the weather be ever so fine, for ours is a very treacherous climate. The shed should also be made with a floor raised at least a foot above the level of the calf paddock, and covered with 6 or 8 inches of dry earth, and littered with short straw. In this shed they should be fed with such artificial food as they are allowed, and in this also they will find a retreat from the heat of the noonday sun. Calves if they get a good bite of grass with roots and cake or meal, require little or no water until they are four months old, as the roots and grass contain so large a per-centage of moisture. Again taking into consideration the uncertainty of our climate, having white frosts at night in some seasons in almost every month in the year, the calves ought never to be out at night except on the driest of land; and then, if it happens to be a low situation near a brook or river, it may be below the fog level, in which case it is too great a risk to allow the calves to remain out at night.

In either cheese or milk-selling dairies the milk is often so valuable that after the third or fourth day from calving, when the cow's milk becomes pure, the calves are not allowed any milk at all except for a few days, when it is gradually stopped and a manufactured substitute is resorted to. In attempting to imitate milk we have no better admixture than bean or pea meal one-third portion, and best linseed cake in meal in proportion of two-thirds; these being cooked and made into gruel is best given in moderate quantities at about the temperature of milk fresh from the cow. Generally with due care and attention in all other matters the calves will do well and may be reared at a moderate cost. Many circumstances may occur to render the use of a substitute for milk either desirable or a necessity, for in case of taking a number of calves at a few days old for the purpose of rearing as dairy stock it sometimes happens that well-bred calves can be obtained from the metropolitan and provincial town markets at small cost, and large numbers are also sold from the cheese dairies, the owners not wishing to rear them. In all such cases with a little care in moderate feeding when they first arrive, we have known some capital herds raised in this way entirely by artificial means, setting the cow's milk out of the question altogether.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—In all those cases where the Lent corn has been already sown the horse labour will consist chiefly in preparing and drilling the land with mangold, also preparing the land for Swedish turnips, which ought now to be in a forward state, for strictly speaking if the land is free from couch and has been twice ploughed the less that there is done to it the better from this time until seeded, because the moisture in the land will be retained, which is so essential, particularly if at any time the weather should suddenly change to drought. Horse-hoeing the corn should now be going on if it has not already been done. In some cases where the wheat plant has lost its dark colour and looks yellow horse-hoeing is almost the only means of restoring the dark profuse colour which a healthy crop always exhibits. It is true this may be brought about generally by a liberal dressing of nitrate of soda; but there are the weeds to be considered, and if they are not destroyed they will compete with the wheat plant and seriously injure the crop. Horse-hoeing in wheat we recommend should be done with the ordinary horse hoe used for root culture, but not with the same shares; and as the ground where autumn-sown wheat is growing is sure to be hard and firm, we advise that three shares be used of the same description as the centre share commonly used for horse-hoeing between roots. These shares should be about 5 or 6 inches wide at the heel, and where the wheat has been drilled at 9 or 12 inches between the rows there is good room for the hoes to work without injuring the corn in the lines. In this way we move the ground well between three rows at one operation, and the hand hoes following will completely destroy the weeds, and the horse hoe having moved the ground an inch or two in depth will give life and renewed vigour to the plants. We find in some strong soils subject to the gold weed, and bents, charlock, &c., that it is necessary to always drill the wheat at from 10 to 12 inches apart between the lines, and in

any heavy land the horse hoe is the best means of restoring health to the plant when it has lost colour, and it must be borne in mind that a yellow and sickly plant always produces a small ear at harvest. It is, however, quite a different matter in horse-hoeing spring-sown corn, like barley or oats, particularly on sandy or gravelly soils, which are subject to poppies, charlock, marigold, and such like weeds, because where the ground is light and loose and the corn has been drilled at 8 or 9 inches apart the ordinary horse hoes made to fit the width of the corn drill will answer the purpose very well, and move the ground fairly if due care is taken to properly adjust the shares. When followed by the hand-hoeing, which is necessary in all soils subject to excess of weeds, they may with ordinary weather be destroyed, but they should be cut up when quite young, because even in the event of rain succeeding the work they will still die off. When Lent corn is drilled at sufficient width and intended to be hoed it is desirable not to sow the clover and grass seeds at the time of drilling the corn, but it is best to defer the sowing of the clover seeds until the hoeing is completed, for not only will the weeds be prevented from choking the young seeds when they vegetate but the land be fine and loose and in a good state to receive the grass seeds, which being rolled in with the ring roller will be almost sure to take and prosper. Where timber has been cut either for sale or repairs on the home farm the removal of bark, faggots, and the timber also should be removed—the sooner the better, and before the corn becomes strong and forward enough to receive injury by workmen, horses, carts, &c., passing to and fro.

The green fodder crops—such as rye, trifolium, &c.—will now be ready to cut up for the horses and other cattle, and it is a common practice that the teammen are required to cut up the green fodder for the horses under their charge after they have been out with the horses all day. It, however, often happens that an hour or two extra work is required of the horses at all the busy periods of summer, and when the teammen are required to cut the green fodder it is often made the excuse of leaving some horse labour unfinished in consequence. Our plan is to employ the odd man and odd horse in cutting green fodder, not only for cattle, pigs, &c., but likewise for the horses at the same time; by this plan we have often finished important horse labour, which would otherwise have been left over, and probably in some cases the best season lost.

Hand Labour.—The women will still be engaged in weeding the corn, grass, &c., and at times they may be employed in couching, dibbling mangold and carrots, or planting cabbages, &c. We must, however, again refer to the subject of burning couch, &c., as nothing which will rot should ever be burnt, but carted away.

BANTAMS.

We try to write for poultry fanciers of all kinds. The exhibitor, the scientific breeder, the cultivator of farm poultry for profit, have all had their turn. We will now endeavour to give some suggestions to another class of our readers, a large one we believe and hope—viz., those who have not spacious premises for model farms or poultry yards, but who delight in a few home pets, and who in some corner of a suburban garden, perchance against an end wall or under the fruit trees in some rough little orchard, keep a few fowls for amusement. What can be more charming or harmless than Bantams? They can be kept almost anywhere. It may be said they are only "a fancy" and useless for the table. This is partially true, though, putting aside the question of size, Bantam cockerels are a delicacy by no means to be despised, and are quite game-like in flavour. Bantam eggs, too, are delicious, and in the case of some breeds large for the size of the hens. They are happy in small quarters, and where insects abound find much of their own provender, so that beyond a little grain for one meal a day nothing need be bought for them. The chicks, too, do not require that incessant feeding which is necessary to get the large varieties to a good size, and are most active in catering for themselves.

As to their accommodation a little lean-to house 4 or 5 feet square will hold a dozen Bantams comfortably, and a grass yard 30 feet square, if frequently swept, can be kept in good order with this number. There should be a little gravel walk through it where they can get grit. An occasional run in the garden where they can be watched, or where no seeds have been newly sown, will be a great treat, which they will repay by picking up a multitude of noxious insects. The little hens with broods can be cooped in any snug corner of the garden; the tiny chicks can do no possible harm till they are big enough to be put into the wired run with the old birds.

Then as to the kinds to be kept. The varieties of Bantams are very many, far more than are generally known. There seems a great opening for anyone who desires to have something different to his or her neighbours in the Bantam line. Poultry shows have caused a great improvement in the beauty of certain more popular varieties of Bantams, but have, we fear, caused the neglect of others at least as useful, and which might be much improved if only equal attention were given to them. We will enumerate some of the kinds which we know to exist and then give our

ideas of the particular beauties and excellencies of each. We do not at all profess to give an exhaustive list, but only an enumeration of those which we ourselves know. Firstly come Game Bantams, the miniature Game fowl of which we know five varieties—viz., Black-breasted Red, Brown-breasted Red, Duckwing, Pile, and White; then clean-legged Rose-combed Bantam, black and white; then Sebright or Laced Bantams, with golden, pure silver, and creamy ground colour; then Booted Bantams, white black, and speckled; then Japanese, with clear yellow legs, of which we have seen four colours—viz., pure white, white with dark tails, speckled, and dark steel coloured. Then we come to the rarer sorts—the exquisite little Pekin or Cochin Bantam, a miniature Buff Cochin; Cuckoos with clean legs, both rose-combed and single-combed; Nankins, or clean-legged Buffs, both rose-combed and single-combed; Partridge; the beautiful old-fashioned Golden and Silver-spangled, now, alas! very rare (they are believed to have been much used in the production of Sebrights); and lastly, Speckled Bantams, probably of Indian origin, and of no very distinctive type. We have seen them in old-fashioned farmyards both with clean and slightly feathered legs, with lark crests and without, of plain black and white plumage, or richly intermixed with red and brown. Here we have a choice of twenty-six varieties or sub-varieties! This number might easily be increased by judicious crossing. Some years ago a then great Bantam fancier determined to attempt to produce a breed of Bantams with the Pencilled Hamburg markings. We regret that he gave up the project, for we do not think the task would be difficult. Hamburgs are a small variety, and Nankin cocks are often extremely like Golden Pencils.

Now as to the respective merits of these many kinds, where activity and high courage is admired choose Game Bantams. They must, however, have high fencing, for they are strong in wing and may fly over to the detriment of the garden. The cockerels, too, are pugnacious, but not so to the same degree as the large Game fowls. They are fairly good layers. We have enumerated the five varieties we know. These should in style all be miniature Game fowls with hard feathering and lightly clipped wings. We can see no reason why with a little pains the other varieties of Game fowl—Dun, Black, and Brassy-winged, should not be produced of Bantam size. Game Bantams are exceedingly hardy. We formerly kept them ourselves in a plantation with no house at all. Nothing ever ailed them, though they were sometimes difficult to catch. We have vivid recollections of the eve of a Crystal Palace Show; the Bantams roosted in a huge ivy-grown tree, and it was far into the night before by aid of ladders and lanterns the destined winners of third prize in a class of fifty were caught. The rage for Game Bantams was then at its height, the classes of them were enormous, and fabulous prices were given for good specimens. Fashion has now somewhat changed, though very good birds are still dear.

We must not omit to mention one drawback to Game Bantams, and, indeed, to all those varieties of Bantams which have been produced within the memory of man from fowls of ordinary size. It is extremely difficult to keep them small; a cross with an unrelated bird, or a too liberal diet, will cause a great increase of size in their produce. The very old-established breeds which doubtless were bred through countless generations by the Chinese or native Indians show little tendency to become larger. We have especially observed this difference in the two kinds of Bantams which we at present keep—viz., Black rose-combed and Nankins. The former, doubtless, have had Black Hamburg blood introduced to improve their colour and lobes. The latter are an old variety. We keep many large varieties of fowls which naturally have much bone-making food. It is impossible to keep the Bantams from getting more of this than is good for them. Year after year are we disappointed at finding our best Blacks, lovely in colour and all points desired, too large for the show pen, and then beaten by smaller birds otherwise inferior, while the Nankins with precisely the same treatment keep as small as can be desired.—C.

(To be continued.)

TOUTING JUDGES BY EXHIBITORS.

WILL you kindly permit me to say that Rabbit exhibiting is becoming very unpleasant and almost unbearable, and it is therefore time something should be done to make matters more agreeable and more satisfactory? It is well known that certain sections of the Rabbit fancy are in the habit of toutting their pet judges months before some of the show committees have even begun to move in their local societies, suggesting that Mr. A or Mr. B, or some other "National Rabbit Society Judge" should be appointed, and then they would "support him well." When exhibitors resort to this trick and succeed with getting appointments of their men then they most assuredly carry off all the prizes, and all small exhibitors, who are chiefly working men and the bone and sinew of our shows, are left out in the cold. Thus they are disheartened and disgusted; whereas if every show committee would disregard those toutters a better state of things would soon be observed.

Those "toutters" invariably suggest at the same time that the

society should offer a "points prize," and that if they could see their way clear to have one they would "support it well," because they know under their judge they would come off with flying colours, and to win points exhibitors for prizes resort to borrowing Rabbits with the object of winning the prize, that being their sole object, and not the encouraging of the breeding of good animals. This I hold is also very objectionable. The "count" for the "points prize" at Thorne is something in my opinion unprecedented in the fancy. An animal getting a first prize is to count ten points, the second eight points, and the like, so that those with bought and borrowed Rabbits of good merit pull the cards with safety, for the counts are unreasonable. It is my wish to put things on a better footing, but so long as "toutting" judges and "points prizes" continue nothing but unpleasantness can arise.—JOHN FIRTH, *Bramley, near Leeds.*

CROSS-BREEDING RABBITS.

I FIND in the *Journal of Horticulture* that "GTA" assumes that "the Silver-Fawn is now a distinct variety," and "if paired with Silver-Greys would throw them too mealy." I have bred many Silver-Fawns last year and this year, and I have yet to learn that the Silver-Fawns are a distinct variety. When I pair Fawns simply I have almost all Silver-Greys in the litters. From several experiments I had all Silver-Greys, and I have only once succeeded in obtaining two Fawns out of a litter of seven. Mr. J. H. Roberts has this week a whole litter from Fawn parents, but this is, in my opinion, the exception. I believe with Mr. McKay that the Silver-Fawns were originally produced with Silver-Greys and the Sandy warren Rabbit; and the in-breeding of the Silver-Greys, especially the light shades, they throw back to the Sandy or Fawn originals. For Silver-Fawns to be a distinct breed or rather variety they must produce offspring like themselves, but they do not do so, therefore they cannot in my opinion be a distinct variety. You may breed Silver-Fawns with judicious selection of a rich deep colour, or otherwise they will be of a mealy description. If when pairing your Silver-Greys, your object being that variety for exhibition, then you may not prove wrong; but if, on the other hand, the Fawns are your object, then you in all probability will be disappointed with the colour of the Fawn offspring.

Those who want to breed good Silver-Fawns must have Silver-Greys of the right blood as well as Fawns with which to pair, and their labours will not be in vain.

There are classes of Fawn blood which scarcely or ever would breed exhibition Fawns. I have tried the experiment myself, and I have been disappointed in every case. The *Lapin Chamois*, buff, bred at the Jardin d'Acclimatation, Paris, is identical in colour with our English Silver-Fawns, and those specimens are the products of a cross between the Silver-Grey and the *Lapin Chamois*, which is like our Belgian Hare Rabbits or our wild warren Rabbits in colour.

I have a letter from a gentleman who has a large Rabbit warren of wild Silver-Grey Rabbits, who invites me to see his Silver-Grey Meales and his Silver-Grey Sandies, which I suppose are what we should call Silver-Fawns, and he has bred them for upwards of fifty years.

It is also recorded by M. Louis Figuier that all our varieties have originated from the common wild warren Rabbit, and cites cases in natural science in support of his argument. Upon this authority and the experiments made at the Jardin d'Acclimatation, Paris, with the *Lapin Chamois*, buff, leads me finally to the conclusion that our English Silver-Fawns are strains of the *Lapin Chamois*, buff, and the first specimens ever produced (English Fawn type) were by Mr. Enoch Hutton, who years ago bred them in abundance.—JNO. FIRTH, *Belle Mount Terrace, Bramley, near Leeds.*

VARIETIES.

SPRATT'S FOOD.—We have had a specimen of Spratt's patent poultry food sent us. We have long used it, and believe it by far the best of the patent meals, and excellent when judiciously used. We have found it beneficial for fowls in any way out of condition, for those which have travelled far or been overhorned, and for hens which are backward in laying. We also recommend it for chickens during exceptionally cold weather or when they seem inclined to pine from any other cause. We do not, however, approve of their being reared on it, or on any but the simplest food as their staple diet.—C.

—THE Oxford meeting of the Bath and West of England Society and Southern Counties Association, now in the hundred and first year of its existence, will commence on June 10th, and extend over the four following days. The show yard, forty acres in extent, is situated within a convenient distance from Oxford. The cattle classes are, with a few minor exceptions, remarkably well filled, the entries numbering 324, and including 27 Devons, 35 Shorthorns, 49 Herefords, 51 Sussex, 68 Jerseys, and 34 Guernseys. Of sheep there are 242 pens, from the flocks of nearly all the best breeders in England, including H.R.H. the

Prince of Wales, and comprising amongst others 49 Southdowns, 44 Shropshires, 31 Oxfordshire Downs, 30 Cotswolds, 27 Hampshire Downs, 21 Devon Long-wools, and 19 Romney Marsh or Kent sheep. The horses number 100, and would have been much more numerous but for an unfortunate misconception as to the date of entry. Pigs are represented by 112 entries. Total of stock, 778. There are also eleven entries of butter in response to special local prizes. An interesting feature in the open judging will be the award of the Champion prizes offered by the Oxfordshire Agricultural Society. The poultry show will be the largest ever held by the Society. Of poultry there are 513 entries, and of pigeons 112, total 625. The implement department of the show will also be on a scale of great magnitude, there being 114 compartments of machinery in motion, as against 59 at Bristol and 106 last year at Bath; whilst in the shedding, nearly three miles in length, will be displayed an extensive variety of implements adapted to the various requirements of the field, the farm, and the household.

— A LINCOLNSHIRE correspondent informs us that the cereal crops in that county have never looked more promising than they do now. Wheat is strong and luxuriant, and barley is full and of an extremely good colour. The meadow lands are also in a satisfactory condition, and the general prospects of food for man and beast are better than has been seen for a long time past at this period of the year.

— We cite the following from a paper on root cultivation which was read at the Maidstone Farmers' Club by Professor Wrightson. A variation of root crops was attended with much advantage, as the constituents of the soil were thus absorbed in more equal quantities, while the farmer was further benefited by being able to supply his stock with a variety of food during a long period of the year. Those who had a succession from white turnips to Swedes and thence to mangolds, and kept up a rotation, having a variety every season, diminished the risk of a bad crop, for weather which did not suit one would perhaps be advantageous for another. There was yet another reason for cultivating a variety of crops, and that consisted in the division of labour. If a farmer attempted to grow a great breadth of Swedes or mangold wurzel alone he had a crush of work at one particular period of the year; whereas if he had a variety—if he grew mangolds, kohlrabi, Swedes, white and yellow turnips, and cabbages—the labour would be distributed over a long period of the year. If, therefore, they took into account the advantage of the change of food for their stock, the better preparation of the land for the succeeding crop, and the division of labour, they found a very good reason for cultivating roots in greater variety.

— WRITING in the *Mark Lane Express* on fangy bulbs Mr. J. J. Mechi observes:—In rich and free soil or highly manured land fibres are multiplied, and a single tap root does the needful; but where the plant food is widely and sparsely distributed bulbs will send out powerful fangs in search of it. When I impoverished my surface soil by steam-ploughing it very deeply, and mixing it with a large quantity of poor and unaired subsoil, the plums in the pudding were too far apart, and the mangolds knew it, and accordingly sent out searchers in the form of long and thick fangs, which brought to their parent the good things which were widely diffused. Feeble-rooted plants could not have done this. I must protest against the supposition that these fanged mangolds are of inferior quality. On the contrary they are dense and heavy, and keep well, and have the advantage of having buried their bulbs deeply in the soil, which is always a sign of quality either in turnip or mangold. A turnip in deep rich land will send a single tap root a yard or more deep, but not so on poor, shallow, or ill-cultivated and undrained land.

BAR-FRAMED HIVES AND THEIR MANAGEMENT.

No. 6.

THERE is no respect, perhaps, in which the bar-framist excels the straw-skepiest more than in the ease and certainty of success with which all his swarming operations are managed, for I must in this paper suppose the object of the bee-keeper to be an increase of stock.

If natural swarming were always successful instead of involving continual disappointment and heavy loss from inconvenience of time and place of swarming and the risk of swarms disappearing, I believe nothing would be better in the long run than to leave bees to settle their colonising arrangements in their own way. When the swarm comes off at the right moment and pitches in the right place there is not only no difficulty whatever, but I believe no artificial swarm, however excellently managed, comes up to that which issues naturally under the circumstances described; and for my own part I must confess that when I am at home and circumstances are favourable for watching and hiving, I generally let my bees follow the instincts and guidance of Nature. Of late years I have usually been very much fixed at home during the whole swarming season, at least up to the end of June; so I trust mostly to the chapter of accidents, and it is seldom I have to lament the loss of a swarm. But it is very different in other cases where the loss would be the rule, as where

the bee-master is absent from home the greater part of the day, or so tied when there as to be practically out of call. Here artificial swarming becomes in a measure necessary.

Of course it is practicable to force bees to swarm out of common straw hives or boxes. This is done either by drumming-out the whole population, or extracting one or more brood combs and operating with them. I have tried both many times and with more or less success. But there are difficulties connected with both methods which require a very practised hand, and then they involve a great deal of risk and trouble, so much so that I never now practise either of these modes of making artificial swarms. A third plan I still frequently adopt which involves next to no trouble or risk. This is adopted whenever the queen of a populous and thriving stock is observed and caught in a super. Nothing is easier than to make her at once the mother of a swarm. Adjust the super (if a small one) over a suitable stock hive or box with or without bar-frames, if with comb so much the better; shift the parent hive to some distance and replace it by the newly-prepared hive and the thing is done. The better plan of proceeding is to secure the queen in a glass with a few bees and give her to the hive after the change of hives has been made, and when the bees have been for some minutes in anxious search for her. Nor is it advisable to perform this operation at all except on a fine day when large numbers of bees are abroad. One caution must be given here: Let the parent hive should become too much thinned of its adult population, as will often be the case when they have discovered the loss of their queen, it is good policy to close the entrance of the hive from dark to dark for a whole twenty-four hours, taking care to give ample ventilation to the hive. In the meanwhile they will have become reconciled to the loss of their queen and will mostly stay at home. From inattention to this precaution much valuable brood has in cases of this kind perished, and the hive even failed to rear a young queen. Of course, the removed hive will have to be watched when the young queens that will be artificially reared therein are approaching maturity, so as to secure the casts or prevent their swarming. There can be no doubt that of all methods of artificial swarming this is the simplest, and with proper care the most certain of success.

But where bar-framed hives are in use there is hardly more trouble or risk, and here of course the time for operating is wholly under the control of the bee-master. It is advisable to allow the stock to arrive at its full maturity short of the bees being largely at work in supers; then, choosing a fine still day when the bees are at their busiest, and all being ready to hand, we would commence operations as follows: With the least disturbance remove all coverings, blow a little smoke if necessary among the exposed combs, and proceed to take out frame after frame, commencing at right or left as is most convenient or where it is believed the brood is mostly situated. Each frame as it is taken out should be very carefully examined to find the queen. It is advisable that she should not be removed from the parent hive. Selecting therefore at least a couple of combs containing eggs and brood of all ages in sealed and open cells, let them be carefully adjusted in the centre of the new hive, which should be filled up with as much worker comb in the bar-frames as can be supplied. Large pieces of artificial comb-foundation would well repay the outlay upon them. When all is ready (it being certainly ascertained that the queen remains in the old hive) put the new hive on the old stance and shift the parent stock to a distant position. Here again you have your swarm secured with very little trouble.

If on examining the combs of the old hive royal cells be found tenanted with brood, of course use can be made of them. The most forward of such cells with their bar-frame entire should be given to the newly formed stock: three or four would suffice. We always like to have several such cells in case of possible accident or failure in maturity. If any more are found they may either be cut away and destroyed, or else they can be utilised for the formation of other swarms, if desired, on the same principle. It would be better, however, not to weaken the old stock by removing any more bar-frames than those taken out in the first instance. We should cut out the royal cells and introduce them into the middle of a comb taken from some other hive, which could then be treated as before indicated. In the case of such royal cells utilised as in this instance and in that first described there would be some difference probably in the result. In the first instance, the new hive being only partially filled with comb and brood, there would be little probability of the issue of casts; but where inserted in a full hive a swarm must be expected, and with the more certainty at the proper time. Should any such cast or swarm issue it would be advisable to return it after securing its queen and destroying her, and so to treat any other casts which might follow.—B. & W.

BEES.

MUCH has been written in favour of wooden boxes instead of the old straw hives. I may say that although my present situation is not one at all favourable to the keeping of bees, yet on the 2nd of May we had a swarm from an old straw hive which

promises to do well. We had only two old hives, and had only obtained these in March, but with a little feeding they have done pretty well; and as I never before remember having had a swarm so early I forward the information to you. I may add that the site they occupy is upwards of 400 feet above sea level, with no higher ground for some miles around us. Have any of your correspondents with better means and better positions been earlier than the above? I think I have heard of a swarm of bees in April, but it is a long time ago, and I am not certain that it could be verified. One other inquiry I would like to make, Are bees better managed now-a-days than they were fifty years ago? My memory carries me back to 1826, when honey was more plentiful than I have ever known it since, and at that time was in some places substituted for sugar for many domestic uses. Will it ever be so again?—J. ROBSON, *Coxheath*.

LIGURIANISING.

"I SHOULD be greatly obliged," writes a correspondent (Mr. J. H.), "if one or other of your experienced bee-keepers would kindly state the best mode of putting Ligurian queens to swarms of common bees. The idea I have is to catch the queen as she leaves the hive with the swarm, let the swarm settle, and then put the Ligurian queen to the swarm before hiving it; but as I intend trying to cultivate Ligurian bees, would like some of your writers to give me their experience so that my experiments may be successful."

Our correspondent's plan, as stated above, could not be successfully practised. It requires much patience to wait and watch for bees swarming, and also much courage and dexterity to catch a queen in the act of swarming. Besides, the rush and gush of bees in swarming are so great that the most expert and experienced person in the world could not be certain of seeing the queen in first swarms as they issue from their hives. If a queen does not go with a swarm the bees soon know it and therefore will not settle. They have a language of their own, and the tidings of their loss or misfortune go like a telegram. And experience does not support the idea of giving a queen to bees before they are aware that their own has been lost or taken from them. When bees find and feel that they are bereft of their queen they will receive and welcome a stranger, even a foreigner, to take her place if properly introduced. This idea of felt bereavement should be well understood by all who mean to ligurianise their apiaries.

Instead of the proposal of our correspondent to catch the black queen in swarming I suggest the most safe and profitable of all plans of introducing Ligurian queens to black bees. After swarming, say the first day after first swarms have left, give Ligurian queens to the old stocks or mother hives, for then they are without queens and royal regency; and though the bees have three or four eggs or maggots in royal cells, they will readily accept queens carefully introduced, and pregnant queens introduced to such hives are worth more than the cost of them, for they begin laying at once, whereas the eggs or maggots would not become perfect and pregnant queens for about a fortnight or more. In artificial swarming the old queen is generally removed with the swarm before eggs are set in royal cells. The bees of the old hive soon discover that they have lost their queen and begin to search for her. During the time of their trouble and concernment they will receive a strange queen if given to them, and never attempt to set eggs in royal cells. "But cannot the queen be given to the swarm as well as to the old hive?" Yes, but it is more difficult and dangerous to do it, and not so profitable or certain of success. In natural swarming the old queen goes with the swarm, and in artificial swarming proper the old queen should go with the swarm. It is unnatural and bewildering to put a swarm of bees into an empty hive and then give them a strange queen or a few pieces of comb containing eggs from which it is expected the bees will rear a queen. In changing queens of hives very little should be left to hazard. If we go too far or too fast in this work we put ourselves in the hands of chance, and thus expose ourselves to disappointment and loss. If our correspondent has many stocks to ligurianise this year we advise him to take from his earliest stocks their queens as soon as possible, and in about twenty-four hours after the queens have been removed put Ligurian queens in their places. This should be done at least a week before swarming. Thus his first early swarms will have Ligurian queens, and the mother hives will have three or four young Ligurian queens each in royal cells, which could be easily cut out and given to later swarms. It would be no difficult undertaking to ligurianise twenty stocks of bees this season from a single fertile Ligurian queen. In removing a fertile queen from a hive whose combs are covered with bees they set from three to six eggs in royal cells, and thus create far more queens than they really want.

The mode of introducing perfect queens to hives has now to be noticed. It is generally done by putting them in cages made for the purpose, and placing these cages between the combs amongst the bees for some hours or days, and then letting them out. The queens thus caged and placed catch the odour of the community and become naturalised, and the bees become at one with them before they are set at liberty. When the principle of ligurianising

is understood the practice becomes easy and successful in more ways than one. The price of a Woodbury hive is 21s. or thereabouts.—A. PETTIGREW.

OUR LETTER BOX.

RED-FACED SPANISH FOWL.—Mr. F. Parker, 8, Milk Street, London, asks for "A WESTERN SUBSCRIBER'S" address.

FLIES IN FOWL HOUSE (A. M.).—We know well how great is the nuisance of which you complain. We have never known carbolic to fail. In our own houses we use the carbolic acid soap. We make it into a thick lather, and with a brush put it freely on every wall. The mere whitewashing by flapping the brush backwards and forwards is useless. It is necessary to introduce it into every crack and cranny. All the woodwork should be served the same, even the perches. While the fowls are out let the flooring of the house be well wetted with a strong mixture of lime and water. After it has laid an hour let the house be swept out with a hard broom till it is scrupulously clean. This must be done after the walls, &c., have been washed. It is, however, possible the fowls bring their plagues with them. If they do it is for want of a dust bath, or from their frequenting some of those outhouses that seem to be left as feeders and nurseries. If the latter be the case either lock them out or destroy the pest house. While the house is cleaning keep the fowls out of it. They will get as near to the entrance as possible. Provide a heap of ashes and road grit, mix therewith a pound of black sulphur. The fowls will use it to their great comfort. If you have convenience for it keep the fowls out of their house for three or four days, and let the cleansing be repeated daily. If these instructions are carried out you will get rid of the pests. While subject to this visitation fowls do nothing profitably.

CHICKENS' DISTENDED CROPS (J. S. W. O.).—Give a teaspoonful of gin for two or three mornings following.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1878.	Barom- eter at 32° and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.				
May.		Dry.	Wet.			Max.	Min.	In sun.	On grass			
We. 8	Inches.	deg.	deg.	W.	deg.	deg.	deg.	deg.	deg.	In.		
Th. 9	29.612	54.6	52.9	N.	56.0	63.7	52.3	97.7	52.5	—		
Fri. 10	29.540	57.2	53.3	N.	54.9	65.4	46.8	102.0	42.2	0.035		
Sat. 11	29.514	61.6	57.0	N.E.	54.5	70.0	47.7	113.0	45.5	0.348		
Sun. 12	29.569	56.9	56.0	S.E.	55.6	68.4	54.0	118.1	51.8	—		
Sun. 13	29.682	63.8	55.6	S.E.	55.6	74.0	49.7	121.3	45.1	0.140		
Mo. 13	29.533	55.4	53.9	S.W.	57.0	65.3	58.1	118.4	51.1	0.088		
Tu. 14	29.465	54.9	51.4	S.W.	56.0	64.3	50.3	106.0	48.4	0.050		
Means		29.645	57.8	54.3		55.7	67.3	50.6	110.8	48.1	0.56	

REMARKS.

- 8th.—Rainy until about 10 A.M., the rest of the day dull with occasional sunshine; evening fine and bright.
9th.—Fine morning, heavy clouds and very dull in the middle of the day; fine afternoon and evening. (light night).
10th.—Bright warm day, rather cloudy at times, still easterly wind; moon.
11th.—Wet morning, but cleared after 10 A.M., fine the rest of the day. Lunar
12th.—Very fine warm day, heavy clouds at 9 P.M. (halo 10.10 P.M.).
13th.—Wet morning, fine during the middle of the day, very heavy shower at 5 P.M.; fine evening.
14th.—Fine day, gusty wind.
Temperature much the same as last week. Sunday might almost be called a summer day.—G. J. SYMONS.

COVENT GARDEN MARKET.—MAY 15.

THERE has been a decided improvement in our Market the last few days, and clearances have been more readily effected. Among new fruits Cherries and Apricots are reaching us from France and Spain. Outdoor vegetables are in good supply.

FRUIT.				VEGETABLES.			
	s.	d.	s. d.		s.	d.	s. d.
Apples.....	½ sleeve	2	6 to 6	Melons.....	each	6	0 12 0
Apricots.....	dozen	1	0 3 0	Nectarines.....	dozen	0	0 0 0
Cherries.....	½ lb	1	6 3 0	Oranges.....	½ 100	3	0 10 0
Chestnuts.....	bushel	10	0 20 0	Peaches.....	dozen	12	0 30 6
Currants.....	½ sleeve	0	0 0 0	Pears, kitchen..	dozen	1	0 3 0
Figs.....	dozen	12	0 20 0	dessert.....	dozen	3	0 12 0
Filberts.....	½ lb	0	1 0 0	Pine Apples.....	½ lb	1	6 5 0
Cobs.....	½ lb	0	1 0 0	Piums.....	½ sleeve	0	0 0 0
Gooseberries..	quart	1	0 2 0	Raspberries....	½ lb	0	0 0 0
Grapes, hothouse	½ lb	4	0 12 0	Strawberries..	½ lb	4	0 16 0
Lemons.....	½ 100	6	0 10 0	Walnuts.....	bushel	5	0 8 0
FRUIT.				VEGETABLES.			
	s.	d.	s. d.		s.	d.	s. d.
Artichokes.....	dozen	2	0 to 4	Leeks.....	bunch	0	2 0 4
Asparagus.....	bundle	2	0 6 0	Mushrooms.....	pottle	1	0 to 2 0
Beans, Kidney forced	½ 100	1	0 2 0	Mustard & Cress	punnet	0	2 0 4
Beet, Red.....	dozen	1	6 3 0	Onions.....	bushel	2	6 3 0
Broccoli.....	bundle	0	9 1 6	Pickling.....	quart	0	4 0 6
Brussels Sprouts	½ sleeve	2	6 0 0	Parsley.....	doz. bunches	2	0 0 0
Cabbage.....	dozen	1	0 2 0	Pear.....	quart	2	6 0 0
Carrots.....	bunch	1	6 2 0	Potatoes, frams	½ lb	0	6 1 3
Capsicums.....	½ 100	1	6 2 0	Potatoes.....	bushel	3	6 7 0
Cauliflowers....	dozen	8	0 6 0	Kidney.....	bushel	5	0 7 0
Celery.....	bundle	1	6 2 0	Radishes.....	doz. bunches	1	0 1 0
Coleworts.....	doz. bunches	2	0 4 0	Rhubarb.....	bundle	0	6 0 9
Cucumbers.....	each	0	6 1 0	Salsify.....	bundle	0	9 1 0
Endive.....	dozen	1	0 0 0	Scorzonera.....	bundle	1	0 0 0
Fennel.....	bunch	3	0 0 0	Seakale.....	basket	1	0 2 0
Ferret.....	½ lb	0	6 0 0	Shallots.....	½ lb	0	8 0 0
Herbs.....	bunch	0	2 0 0	Spinach.....	bushel	2	6 4 0
Lettuce.....	dozen	1	0 2 0	Turnips, new ..	bunch	1	6 3 6

WEEKLY CALENDAR.

Day of Month	Day of Week	MAY 23—29, 1878.	Average Temperature near London.			Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.		Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	Days.	m. s.		
23	TH	Royal Society at 8.30 P.M.	67.7	44.9	56.3	5 59	7 54	0 46	10 39	21	3 31	143					
24	F	Crystal Palace Show.	68.3	44.0	56.1	5 58	7 55	1 0	11 49	22	3 25	144					
25	S	Royal Botanic Society at 8.45 P.M.	66.3	43.7	55.0	5 57	7 56	1 11	0a 58	23	3 20	145					
26	SUN	ROGATION SUNDAY.	67.1	43.1	55.1	5 56	7 57	1 22	2 7	24	3 14	146					
27	M	Royal Geographical Society (Anniversary) at 1 P.M.	65.8	42.5	55.5	5 55	7 58	1 33	3 17	25	3 7	147					
28	TU	Royal Horticultural Society—Great Summer Show	67.6	44.8	56.2	5 54	7 59	1 46	4 28	26	3 53	148					
29	W	Society of Arts at 8 P.M. [opens.	66.9	44.3	55.8	5 53	8 0	2 1	5 42	27	2 44	149					

From observations taken near London during forty-three years, the average day temperature of the week is 67.1°; and its night temperature 44.3°.

TEA ROSES.

THE manner of growing these, the only Roses worth calling "perpetual," is destined to undergo a revolution. There has of late years been a great move towards growing, flowering, and finishing with plants in pots in one season—for instance, Fuchsias, Gardenias, Tree Carnations, and many others of less importance—but till within a year or two I had no idea that Tea Roses were amenable to this style of culture. It is, however, proved that they are not only amenable to it, but that grown in any other way they will bear no comparison at all. Our young beaux will have to look elsewhere for a supply for their button-holes, for Catherine Mermet and Souvenir d'un Ami 5 or 6 inches across will be voted vulgar in the extreme; even in the bud just showing colour they almost look like miniature "Sugar-loaf" Cabbages. Happily our ladies do not object to large Roses, even should they be able to bury their faces in them; therefore I am on the side of the ladies (the next best position to that enjoyed by Mr. Disraeli when he said he was "on the side of the angels"), and shall listen to no one who decries large Roses, unless they are at the same time either coarse or scentless; for remember the words "large" and "coarse" are not synonymous.

Anyone who has noticed the natural mode of growth of Tea Roses will have observed that to thrive at all well they must throw up a continual succession of suckers, first weakly, then a little stronger, and afterwards, if encouraged, stronger still. This, then, is the key to the only right way of growing them, and to make sure that all the suckers shall be of the right sort it is necessary to have the plants on their own roots. I know no reason for growing them on Briars or Manettis; it cannot be to make them grow stronger, for it has the very opposite effect in the long run. It cannot be to enable them to withstand winter, because if they are killed down to the ground all is gone but the Briar, whereas Tea Roses on their natural roots down in the ground a foot or two would probably start again from the base in the spring. Nor is it because they are difficult to propagate, for they are as easy to strike as Verbenas. If it is argued that it makes them more floriferous, then remember that, with the exception of one or two sorts not strictly Teas, where there is growth flower will follow as a matter of course, and the finest flowers do not come on the weakest growth.

In July, 1876, I inserted cuttings of the best sorts I then had, including some which are not yet surpassed—viz., Devoniensis, Alba rosea, Catherine Mermet, and Souvenir d'un Ami. The cuttings were made of the firmest growth of the current year, and placed under handlights on the north side of a wall. They soon rooted and started growing without losing much of their old foliage; they were then potted into 4-inch pots, placed in a cold frame kept rather close and shaded till they started, then gradually hardened, and soon after—probably in September—they were shifted into 8-inch pots and placed outside. They

were protected a little during winter, being in a cold house not by any means frost-proof, and during last summer were repotted into 14 and 15-inch pots, using soil such as would grow fruit trees well in pots—viz., fresh rather heavy turfy loam, a sprinkling of half-inch boiled bones, a few pieces of charcoal, and a little decayed farmyard manure of good quality dried and rubbed through a sieve. The loam was rough, many of the pieces being half the size of a brick.

This spring we have had flowers such as I never saw before, and the plants have kept constantly throwing up suckers stronger and stronger, with flowers to correspond. But the pots are already too small for the plants; they will therefore be transferred to the open ground on the north side of the walls of some of the houses, and be succeeded by a fresh batch. It will be seen that the plants now to be turned out are nearly two years old; but from past experience I have no doubt of being able to do them nearly as well, if not quite so large, in one year.

It may be said that the same liberal treatment given to plants not on their own roots might have produced equally satisfactory results, but I can say decidedly No; for I bought some of the best plants procurable, and treated them as well as I was able, and they are simply nowhere in comparison.

Mildew does not often come spontaneously on plants grown thus without a check, but the purchased plants of newer sorts had some and it spread to the others. When such a case occurs I practise and advise no half measures, but gather all expanding flowers, place some sulphur with water in a waterpot, stir well about, and apply with a syringe in fine spray to both sides of every leaf in the house whether affected or not, and the first time the sun shines on it every spore will be killed. This is much easier and a far more effectual plan than dusting. The sulphur can be syringed off in a day or two, leaving hardly a trace behind. I do not think sulphur does much good in dull weather either inside or out; it is not at all easy to kill mildew outside in autumn when the sun has but little power.

So much for Tea Roses indoors. I have said that the plants in pots now will be turned out against the north side of some of the houses. I am fully convinced that Tea Roses do not like extreme temperatures. A south wall is the very worst possible position for them, but the north side of a heated house suits them to perfection. I have all such positions almost covered with them, but some of the sorts will have to give place to their superiors. I should advise friends in a less genial climate to try their Roses on the western or south-western side of a building. Mere garden walls will not do so well as the walls of a building.

Tobacco powder is very useful for dusting whenever there is a suspicion of fly. It is certain death to the fly with which it comes in contact, and if applied in the evening when the sun is not powerful it will not injure the foliage even if allowed to remain on next day. Dusted over cuttings closely confined in a handlight or bellglass it will kill every insect whether it touches them or not, but in this case the sun must on no account touch it. The powder I use is prepared by Corry & Soper, London,

and is supplied by nurserymen; but I believe there are other manufacturers equally to be depended on. It is free of duty, and therefore costs little.—WILLIAM TAYLOR.

VEGETABLE CULTURE.

CHAP. XIX.—PARSLEY.

PARSLEY is always an important crop in the kitchen garden. It is one of those herbs which every person tries to grow, but unfortunately not always with success. Indeed there are few crops more difficult to manage in some gardens; in others it is quite the opposite. Canker and grubs are its greatest enemies, and in this case as well as in many others prevention is better than cure. Very often the young plants come up freely at first and die quickly away afterwards. When they begin to go it is difficult to stop the destruction. Many things have been advised to do this, but I never knew one of them to succeed in all instances.

To ensure healthy growth provision must be made for it before the seed is sown. In selecting a piece of ground for Parsley culture it should be moderately heavy soil, not too warm and gravelly, nor much exposed to the sun. Before digging it over, soot, lime, and wood ashes in equal quantities should be spread over the ground 3 inches deep and worked well in with the soil. This will make it vermin-proof for twelve months, and the Parsley will grow unmolested so far as the grubs are concerned. This will always be found a much safer plan than applying a dose of any insecticide after the plants are up and beginning to go off. A little salt is very good for mixing with the soot. Every person can get soot, and nothing better can be applied.

As Parsley should always be sown on ground that has been well manured for the previous crop no more manure should be given when the Parsley preparation is going on.

The earliest sowing should be in March, again in April, and the last at the end of May or beginning of June. Where only one sowing is made in the year it should be done at the last-named time. Parsley sown now will remain perfectly good until this time next year or longer, but that sown in March generally runs to seed early the following spring; therefore to depend on this sowing would leave a gap in the supply during the spring months when it is often most wanted. It is always best to sow the seed in drills. Sometimes a long row can be sown along the bottom of a wall or by the side of a path; but where a large quantity of it is grown it is best to make a large patch of it together, and then the rows should be 15 or 18 inches apart. About 1½ inch is the right depth for the drills, and the material used for covering over the seed should be half soil and half lime, soot and ashes mixed together. This is another excellent precaution both for grub and canker, and it cannot be too carefully attended to. As soon as the rows can be seen the hoe must be put to work amongst them. When the plants are 3 inches high they may be thinned out to about the same distance apart, and when they are in extra strong health they may be left double this width; but when there is any suspicion or indication of the crop dying off the thinning should be delayed, or the crop may become deficient. When the plants have fairly met in the rows and becoming crowded all the large leaves should be gathered as they become too coarse for use. After giving a supply all winter the whole of the leaves may be cut off close to the ground, and when the plants sprout again the produce will be as fine as ever, especially if a little soot is washed down about the roots at the time of cutting it over.

Myatt's Garnishing is an old favourite sort of ours which we always grow in quantity, and Carter's New Fern-leaved is worth growing on account of its ornamental character.—A KITCHEN GARDENER.

AURICULAS.

To all admirers of this long-neglected flower it is quite refreshing to read the reports of the late Crystal Palace and Manchester Shows. It would still be a greater treat to have seen either or both of the Exhibitions, and I would respectfully suggest to our English brother florists the advisability of holding a show near the borders so as to give an opportunity to us Scotch growers, if not to enter the field as competitors, at least to enjoy the pleasure of seeing our favourites in perfection as well as to compare friendly notes.

I was much struck with an observation I read lately as to the difficulties experienced in growing or rather blooming the

Auricula in large towns such as Sheffield, where one has to contend with the effects of smoke and bad air, &c., and the plan taken to try and overcome this great drawback. There is no doubt the Auricula, like all other florist flowers, always thrives best when it enjoys a constant circulation of pure air. As an instance of this, my old and much-respected friend, that veteran raiser and grower, the late George Lightbody, was in the habit of complaining very much of the bad effects on all his plants caused by the fumes and smoke of an adjoining gas works. This was specially observable on Auriculas of a delicate habit of growth, and having noticed that any plants he had from me were generally very vigorous and healthy, he was latterly in the habit of sending me some delicate growers to see if pure air would impart more vigour into them. The only one I failed with was a most exquisite grey-edge called Traill's Earl of Dundonald, and in sending me a very small plant the second time Mr. Lightbody wrote that he believed it to be the last bit of it in existence.

My father (a keen florist, now gone to his rest) both grew and competed successfully with the Auricula in Perthshire upwards of sixty years ago, and at that time he said it was quite the rage. I do not see any reason why this lovely hardy plant should not again become the "flower of the day."—J. M.

GLOXINIAS.

ON page 377 a dozen varieties of excellent Gloxinias were enumerated, which, if well grown, cannot fail to give satisfaction to the cultivators. There may, however, be some difficulty in obtaining some of the varieties named, and a similar number are now submitted which are not only obtainable, but which for distinctness of colour and sterling merit will be difficult to excel. They are selected from a splendid collection now flowering in Messrs. Veitch's nursery at Chelsea. This firm has during recent years devoted special attention to improving this valuable summer decorative flower, and under the skilful manipulation of Mr. West, in whose charge the plants are, many varieties of great excellence have been raised. The whole of those now selected are, however, not the productions of the firm; one or two of them are of continental origin, and the best white was raised by Mr. Rapley, the grower of the fine collection of Calceolarias referred to on page 356, and was distributed by Mr. B. S. Williams; yet most of the varieties now submitted were raised in the renowned Chelsea establishment, and they are selected because of their dissimilarity to each other and their general superiority. Those who grow the varieties now named and grow them well, which is not difficult to do, will not be disappointed.

It may be remarked that many of the finest flowers have the corolla divided into six and occasionally seven segments, the normal number being five. The additional segment is a great acquisition by imparting to the flower a smoothness and roundness of form not possessed by the five-lobed flowers. Continental raisers claim the honour of having first produced the additional segment, and perhaps the claim is a just one; but the matter is just about as doubtful as to who was the real discoverer of the planet Neptune, Adams in England or Leverrier in France. Sagés differ on both points. As to the Gloxinias, however, it is not only certain that several of the Chelsea-raised flowers have more than five segments, but it is equally certain that Avalanche raised by Mr. Rapley has invariably six lobes.

Since Gloxinias have been so greatly improved of late years, and since their flowers are so varied in colour and so beautiful, also considering that the plants in consequence of their expansive foliage and its liability to injury are not the best of travellers, it becomes a question whether cut flowers should not be staged at exhibitions. The varieties are surely as worthy of being so exhibited as cut blooms of zonal Pelargoniums. One thing is clear—namely, that the individual flowers of superior Gloxinias will bear close and critical examination. The clear and chaste spotting of some of the flowers and the fine contrasting colours of others, the spotless purity of the white and the richness of the warmer colours, render them not only conspicuous but singularly attractive; they also keep very well in water—better, in fact, than some other flowers that are shown in a cut state.

All the varieties now enumerated have upright flowers:—*Mr. Gladstone*.—Throat very pure, base of segments purplish crimson, body shading to rose; fine habit, stately and free. A splendid variety.

Niobe.—Rosy crimson edged white. Very pretty and effective.

Nimbo Cileste.—Crimson; throat densely spotted with white. Very attractive.

Charme de Lutesco.—White ground densely spotted and shaded lilac. Distinct.

Roselane.—Rosey purple throat, crimson at the mouth, segments margined with white; fine habit, free, and very good.

Coupe d'Hébé.—Pure white throat; body colour brilliant crimson scarlet blotched with purple. A splendid variety.

Avalanche.—The finest of all the whites, but the throat faintly mottled. Large and of superior form.

No Plus Ultra.—Dense purple, base of throat white. A telling variety; large and very fine.

Vesuvius.—Bright glowing scarlet, white throat. Very rich and striking.

Conquest.—Magenta shaded purple throat internally, outside white; white margin. Very fine.

Eclipse.—Very rich velvety crimson, faint rose margin. Best in its colour.

Rebecca.—Creamy white throat, colour purplish crimson shaded rose, centre of each lobe white. Stately and fine.

The above twelve varieties are selected for an extensive and unique collection of these beautiful flowers.—J. W.

NOTES ON THE RASPBERRY.

SOME remarks having recently been made by different writers about Raspberries being all the better for being left undisturbed for a great number of years, and as this fruit forms an important item of cultivation in the immediate neighbourhood in which I am residing, I may be supposed to give an opinion backed by extensive practice. First of all I may say, that although it would not be difficult to find a piece of Hops that has existed as a cultivated garden producing good or fair crops according to the character of the respective seasons for one hundred years or more, and possibly may continue doing so for an indefinite time, I am not aware of any plot of Raspberries anything like so old; in fact, I believe it would be difficult to find a piece more than twenty years old. The general opinion in this district is that Raspberries, like all other fruits, only continue to bear a certain number of years with advantage and profit; the plants will continue to exist, but not to bear fruit in sufficient quantity and quality to pay for the ground they occupy. This practical mode of judging of the time to make a change in the cropping is one which no one is more likely to exercise than those whose living depends on what they gain by occupying the land. When a permanently established crop like that of Raspberries is destroyed or done away with we may rest assured that it is no longer worth retaining.

Presuming that someone will be glad to know how this fruit is cultivated on an extensive scale in Kent, it is necessary first to glance at the character of the soil. This may be roughly described as being a dry one, water for domestic use being rarely found at a less depth than 100 feet. Stones of all sizes from the very smallest to those weighing a hundredweight or more are plentifully interspersed with the top soil, but the larger stones have in most cases been removed; but it is not thought good practice to pick off more than will work-in reasonably well with the plough or spade. The stones are of a hard kind, though not at all approaching flint, but they make good roads. The soil which is mixed with these stones, although some crops thrive in it very well, has the character of being a hungry poor one, and, in accordance with the popular notion, requires a shower of rain every day and a thorough wet day on Sundays. Yet nowhere in the kingdom have I seen such good hedges, it being the boast of some farmers that a hare inside some of their fields could not get out except at the gates. Some trees also thrive remarkably well, Sweet Chestnuts notably so, but grass and most small crops require feeding. Fruits that seem to thrive best of all are Damsons, Red Currants, and Raspberries. Gooseberries are also grown on a large scale, but are declining in favour, and only a few Black Currants are grown. Excellent Morello Cherries are grown, and a fair proportion of Apples, though neither in quantity nor quality equal to those grown in some other parts of the county. Plums of most kinds like a deeper and moister soil, and Pears are not much grown; but as Raspberries are more especially regarded, and as some growers send two or three tons or more to market every year, it may be interesting to know their mode of cultivation.

This is very simple and easily explained. In a general way this fruit is cultivated in connection with some other. Usually

Damson trees in the form of standards 6 feet high are planted all over the ground at about 24 or 30 feet apart, these trees being staked carefully for a few years and compact heads formed by looking them over every winter and pruning them a little. Raspberry canes are then planted over the ground in rows 5 or 6 feet apart. If the latter distance the canes are afterwards allowed to form a continuous row, but if only 5 feet is allowed the stools are about the same apart in the row. The winter pruning consists of cutting the young canes all to a uniform height of about 2½ feet, no stakes being used. From conversations I have had with several growers they seem averse to adopt the plan, common in private gardens, of allowing a greater length of cane and not cutting off the upper portion with its cluster of buds, as they affirm that by this plan they get a longer succession of fruit, and, moreover, if it all came on at once they would have difficulty in getting it picked, for, as it is, the labour required in picking say 300 or 400 lbs. of Raspberries daily is a serious matter. Moreover, by the canes being cut in the way described the sun shines into the middle of the bush or head, and excellent fruit is obtained. From this neighbourhood the fruit is sent to market in tubs with something tied over their tops. This, of course, necessitates a heavier carriage to be paid, and taken in addition to the cost of picking, has limited the growth of this fruit very much. Still it ranks as one of the most important items of cultivation just around where I am now writing, and, in conjunction with Damsons, occupies a much wider area than that of Wheat or any other farming crop. Of the next important fruit grown, Red Currants, I may perhaps have something to say hereafter, but would like to be better informed of the various kinds grown before I do so. I may, however, observe that I fear many of our Raspberry growers are rather careless on this score, although others keep pace with the most fastidious private growers in this respect and grow all the kinds known to be good.

As someone said that age increased the fruit-bearing properties of the Raspberry plant, I may add that after a certain lapse of time quite the contrary is the case. Of course heavy and copious manuring will tell its tale, but like all other fruits the Raspberry will wear out. In the cases described above the advancing growth of the standard Damson renders the Raspberries gradually less fruitful, and they are removed by degrees and the Damsons are allowed to occupy the whole space. Some plantations that are solely Raspberries also wear out; in fact what is there in vegetation that does not do so? And to point to a piece of wild plantation bears very little on the case, for in such a position it only obeys the laws of Nature, and if possessed of vital powers sufficient to drive away a previous occupant of the spot it does so. Nettles and Docks do the same thing, and in their turn have to make room for timber trees and the like; but in the matter of Raspberries the question ought to be narrowed in the plain practical one, Is it advisable to allow the Raspberries to occupy the same ground for a whole lifetime or more, or is it better to change the site? Surely those having a due regard to the *£ s. d.* part of the matter have the best right to give a judgment on the affair.

I will possibly at a future time call attention to the merits of a Damson widely cultivated in the district; and as its originator lives in the same parish in which I reside I hope to obtain some information on its early culture from my worthy old friend, from whom many more years of its culture can hardly be expected, as he is fast approaching the completion of his eighty-seventh year.—J. ROBSON.

GEUM COCCINEUM FLORE-PLENO.

OF all hardy border plants this is one of the earliest, brightest, and finest. It is not really a double flower, but at the first glance has the appearance of one, and almost resembles a miniature Turban Ranunculus. The finest display of this Geum—indeed one of the brightest beds of any flower that I have seen at this early period of the year—is in the nurseries of Messrs. Rolleston at Tooting.

The plants were raised from seed sown last year, and were planted in rows about a foot apart on a border having an east aspect—that is, a border in front of the western boundary wall of the nursery. The plants in this bed commenced flowering in March, and have been yielding a valuable supply of cut flowers throughout the spring. The beds are now a mass of scarlet; not a dense close mass like that produced by a bed of scarlet Geraniums, but throw up in great profusion spikes of

double scarlet flowers totally dissimilar from any other flower of the same period. Plants raised in this manner and treated as biennials are immeasurably superior to plants left year after year in borders to produce straggling spikes of small semi-double flowers.

The plants in Messrs. Rollisson's nursery are about a foot high, and the spikes do not need stakes to support them.

BRIDGE HALL, BURY.

THE SEAT OF O. O. WRIGLEY, ESQ.

ALL who have visited the great Whitsuntide shows at Old Trafford, Manchester, or who were present at the grand exhibition held during the first year of the Westminster Aquarium, have no need to be told of the excellence of the Orchids and Ferns which have their home at Bridge Hall; but they may be not unwilling to know a little concerning them in their ordinary condition when not seen in their "company manners," and to them as well as others these brief notes of a recent visit there may not be unwelcome.

A few years ago a very dear friend who was quartered then at Bury, but who is now, like another Cincinnatus, growing his Cabbages in Natal, sent me at the head of a letter a sketch of the country round Bury. It consisted simply of a long row of chimneys vomiting out volumes of smoke. If that be somewhat of an exaggeration yet it is not to a southerner a pleasant land. From Manchester you pass through a series of towns, in all of which smoke, dust, and factory refuse attest to the increase of wealth, but certainly not to rural delights; and as you approach Bury it does not improve. Trees battle for existence; shrubs are sickly; streams not certainly free from pollution, and reminding one more of the yellow Tiber as I have seen it after a tremendous rainfall than anything else, are all evidences that one must not look for the perfection of outdoor gardening in these localities, and it is this, amongst other things, which has been probably the cause of such spirited cultivation of Orchids and stove plants in these manufacturing districts. Glass protects them from the atmospheric influences so destructive to out-of-door culture. Coal is plentiful, purses are long, and the rivalry which has led to such splendid results in manufactures has tended to produce similar success in Orchid culture, and nowhere are finer masses of the very best Orchids to be seen than in the north.

Bridge Hall is a plain and unpretending but most comfortable house, the outdoor gardening of little importance, but with a great wealth of beauty and high cultivation under glass. These glass structures are not built for ornament but for use. There are no high-domed conservatories, but good healthy homes for the plants, which are dear to the owner and most skilfully cultivated by his very able and enthusiastic gardener Mr. Hubbersty. The *Gleichenias* were in splendid condition, and I was very much surprised to find that one plant of *flabellata* had been in the same pot for nine years and yet was throwing up grand fronds. *Gleichenia rupestris glaucescens* was also very fine, as indeed were the various plants of this fine genus grown here.

Orchids are grown here as cool as it is allowable for them to be, and amply repay the treatment. Taking the *Odontoglossum*, that varied and beautiful genus, there were grand masses of *Alexandrae* (*Bluntii* or *crispum*) with the varied markings it exhibits; *O. triumphans* very fine; and *vexillarium* in such vigour that I hope when in flower it may be seen by many, so as to gladden their eyes with a fine specimen of one of the most lovely Orchids in cultivation, and in such condition as it is not often seen in. The collection is unusually rich in *Masdevallias*. There is a splendid variety of *M. ignea*, one of the very highest coloured ones I have ever seen, and another of *M. Harryana sanguinea*, of most intense glowing scarlet. Then there is the curious *M. chimæra*, fine clumps also of *M. Lindeni*, *M. towarensis* in great numbers, and another botanical curiosity, *M. nycterinia*. The *Anguloas* exhibited by Mr. Wrigley have always been particularly striking, and the grand masses of *Anguloa Clowesii* with forty or fifty growths now coming into bloom will be indeed a sight. Then *Anguloa eburnea* was also in great vigour. Among the Orchids one is in the habit of seeing in great beauty about Manchester is *Dendrobium Falconeri*, and at Bridge Hall there are several fine plants of it. The *Thunias* are also very well done here, and fine masses of *Bensoniæ* promised for vigour and abundant bloom. *Cœlogyne cristata* was also numerous and well grown and is a great favourite. In fact one has only to run through the most select Orchid catalogue, and to find that, in whatever

section it may be, healthy and vigorous masses are to be found here. No, there is one exception: by no inducement can *Phalænopsis Schilleriana* be coaxed to grow. In every aspect, condition of temperature, and mode of culture it has been attempted, and in every instance it has failed.

Amongst other plants cultivated here with great success are the *Nepenthes*, to which a house is principally devoted; and here were to be found grand plants of *Nepenthes Hookeriana*, which, although considered only a variety of *N. Rafflesiana*, has quite distinct pitchers from it. They are 3 or 4 inches long and the growth is more compact, while the lid of the pitcher turns back instead of, as in *Rafflesiana*, turning over it. Then there is *Nepenthes sanguinea*, the finest of all the family, with pitchers from 8 to 12 inches in length and 3 inches in diameter, and their deep crimson colour is sure to attract. Then there is the lanata variety of *Veitchii*, with large pitchers 8 or 9 inches long and leathery leaves; the pitchers are green and covered with minute woolly hairs. Other varieties of *Nepenthes* are cultivated, but these struck me as being particularly fine.

Noticeable also were the grand masses of *Anthurium Schertzerianum* with so many variations of form and size, some with long, others with broad spathes, and one in which it is almost horizontal instead of perpendicular. There was a number of other noticeable plants; indeed I may safely say that all were well cared for and showed the result of really good cultivation and of intelligent oversight, and even, although not in flower, were interesting from these facts.

There was yet another treat in store for me, the sight of a very choice collection of paintings of modern artists, comprising chef-d'œuvres of Landseer, David Cox, MacIise, Copley Fielding, Faed, and others, which Mr. Wrigley, sen., has collected in his fine house at Timberhurst close by—a collection which has been selected with the greatest care, and of which it is not too much to say that it is unsurpassed for high-class modern pictures of the English school.

Thus must end these few and very imperfect notes of a very pleasant visit, and in which, though a perfect stranger, I was received with that kindness and hospitality for which the north is so famous.—D., Deal.

ROYAL HORTICULTURAL SOCIETY.

MAY 21ST.

As a change from extensive displays that have been provided almost without intermission throughout the season a comparatively small number of plants only were exhibited at this meeting. Large exhibitions pending rendered it necessary for the great growers to make preparations for them; and as they have exhibited so splendidly at the oft-recurring meetings of the Society it is not surprising that both human and plant nature require a momentary rest. Yet several choice plants and some fruit were submitted to the Committees, which assembled in the Council room, and several certificates were awarded. Large groups of plants from Messrs. Rollisson & Sons and Mr. Wills, and a collection of cut blooms of *Irises*, &c., from Messrs. Barr & Sugden, were arranged in the conservatory.

FRUIT COMMITTEE.—John Lee, Esq., in the chair. Mr. Shirley Hibbert exhibited four pans of Erfurt Sweet Cress beautifully grown, to which a cultural commendation was awarded. The mode of culture adopted by Mr. Hibbert for this Cress will tend to introduce the Watercress as a permanent salad all the year round. Mr. Divers, gardener to W. Moore, Esq., Merton House, Maidstone, sent four dishes of Apples, to which a letter of thanks was awarded. Several pots of forced plants of *Vicomtesse Hericart de Thury* and *Garibaldi* were sent from the garden of the Society, and it was the opinion of the Committee that they were identical; also pots of *Marie Nicaise*, a large handsome fruit, but very acid. Mr. C. Howe, The Gardens, Benham Park, Newbury, sent three seedling Melons—Benham Hybrid Green-flesh, a cross between Scarlet Queen and Gilbert's Hero of Bath, a pleasant-flavoured fruit, but not in promising perfection; Benham White-flesh, a prettily-netted variety, raised from Orion crossed by Gilbert's Green-flesh, was not so good as the former; Benham Park Gem, also beautifully netted and scarlet flesh, raised between Scarlet Queen and Scarlet Gem. This is a very handsome fruit with a very juicy flesh for a red-fleshed Melon, and of excellent flavour. It was thought to be very much like Read's Scarlet-flesh, and not superior to that variety. It was proposed that the green-fleshed and the red-fleshed be seen again later in the season. Mr. Warde, The Gardens, Longford Castle, Wilts, sent a red-fleshed Melon called Longford Hybrid, which was of inferior merit.

FLORAL COMMITTEE.—Dr. Denny in the chair. Mr. B. S. Williams exhibited a small but choice collection of plants in the

Council room. *Sadleria cyatheoides*, a bold and stately Tree Fern from the Sandwich Islands, was awarded a first-class certificate. A similar award was made to *Alsophila plumosa*, a small Tree Fern with pinnae of great elegance. A similar honour was bestowed on *Adiantum neo-guineense*, a very free-growing Fern, having a general resemblance to *A. cuneatum* but a very much stronger and upright grower. It cannot fail to prove a valuable and popular plant for general decorative purposes. *Phycosperma rupicola*, a splendid Palm with broad, imposing, gracefully arched fronds, was also awarded a first-class certificate. It is a Palm of fine character, and will be valuable both for exhibition purposes and home embellishment. A similar award was made to *Cycas media*. Mr. Williams also exhibited the white-spathed *Anthurium A. Patinii* and *A. Dechardii*, the spathe of the last-named being very large and pure. A very elegant Fern in this group was *Nephrodium lucidum*, which is certainly one of the most chaste of this genus.

Messrs. James Veitch & Sons also exhibited a small collection of miscellaneous plants. *Hæmanthus Kalbreyeri* was awarded a first-class certificate. The flower stems are much marbled, and the flower heads are large and very rich. A botanical commendation was awarded for *Liparis elegantissima*, a dwarf terrestrial Orchid with foliage 4 inches long and 1½ broad, acutely ovate, green, with a broad creamy edge; the flower is inconspicuous but very singular. *Crinum Verschaffeltianum*, an introduction of Mr. Peter Veitch from the South Sea Islands, was exhibited. It is an imposing plant with broad arching foliage 3 feet long, green striped with white, after the manner of the variegated Maize. Very fine in this collection was *Tillandsia zebrina major*. Its large marbled leaves are extremely ornamental, but not more so than the brilliant scarlet flower spike, about 2 feet in length and resembling a fiery sword. Messrs. Veitch also exhibited a choice group of *Masdevallias*, including the extremely grotesque *M. chimera*, the brilliant yellow *M. Davisii* and some others; also the remarkable *Restrepia antennifera* and its variety *aurea*, which are both curious and beautiful. The same firm also exhibited the singularly elegant filmy Fern *Todea plumosa*.

Four very fine tuberous *Begonias* were exhibited by Messrs. John Laing & Co., and amongst them a remarkable double variety raised by M. Lemoine and named *President Burelle*. The flower has guard petals similar to a Hollyhock, and the centre is composed of numerous smooth and closely arranged smaller petals. The colour is rich scarlet, and the bloom resembles the flower of a Turban Ranunculus; the plant also is of dwarf sturdy habit. A first-class certificate was awarded. *Arago*, soft scarlet, and *Lælia*, vermilion scarlet, are fine single varieties; and *Carnicolor*, flesh-coloured, has very large flowers.

Mr. G. F. Wilson exhibited an admirably grown plant of *Lilium tenuifolium* with two stems and twenty-one brilliant and elegant flowers. It was very beautiful, and was awarded a first-class certificate. Mr. H. J. Buchan, Wilton House, Southampton, sent *Cymbidium tigrinum*, the plant being grown in a basket and bearing six flowers. A vote of thanks was awarded. A similar award was made to Mr. Douglas, who exhibited a plant of *Aquila cœrulea hybrida*, which is extremely beautiful, also cut flowers produced from seed saved from the new variety; these, though showing some slight variation, are still as attractive as the original. Mr. Cannell was awarded a vote of thanks for cut blooms of *Geraniums* of the true Swanley stamp—excellent; trusses of a new *Verbena*, *Esmeralda*, white, heavily striped and spotted with blue, were also sent by Mr. Cannell. Mr. Knight, florist, Battle, Sussex, exhibited his double striped *Vesuvius Geranium*; it is scarlet striped with white. It is a novelty, and will attract the attention of the floral curios.

The *Gloxinias* referred to on page 377 as being grown at Chiswick were submitted to the Committee, and to two of them—*Boule de Feu*, glowing crimson scarlet with white-mottled throat, large, and of good substance, and *Mont Blanc*, pure spotless white—first-class certificates were awarded. They were raised by M. Lemoine of Nancy. Double Ivy-leaved *Pelargoniums* raised by the same celebrated hybridist were also exhibited, to one of which, "No. 22," a first-class certificate was granted. The flower is large, round, double, and pale lilac in colour.

Mr. Wills arranged an extensive collection of plants in the conservatory. Prominent were three large pyramid *Azaleas*, one in the centre and one at each end of the group. Between them were *Palms*, and, beneath the *Palms*, *Spiræas* (*Hoteia*), very fine *Gloxinias*, and rich *Orchids*, the whole being edged with *Lysimachia nummularia* and *Isolepis gracilis*. Amongst the *Orchids* *Cattleya Mossiæ*, *Odontoglossum vexillarium*, *O. cirrhosum*, and *O. citreum* roseum were very beautiful.

Messrs. Rollisson & Sons, Tooting, also arranged a very large, varied, and excellent collection. Noteworthy amongst the flowering plants were the effective *Azalea Souvenir de Prince Albert*; *Sarracenia purpurea*, with twenty flowers; *Alyssum Wierbeckii*, one of the finest of all the *Alyssums*; *Saxifraga densa*, a charming plant; *S. granulata*, double white, distinct, and useful; *Viola pedata*, an attractive species and valuable for rockwork; and some ornamental-foliaged plants. Mr. Aldous, florist, Gloucester Road, Kensington, staged a bright and attractive group of orna-

mental-foliaged and flowering plants suitable for general decorative purposes. From the Society's Gardens at Chiswick came admirably cultivated plants of Harrison's Giant Musk, which is certainly one of the best decorative and window plants that have been recently introduced. Associated with the Musk were dwarf clearly striped plants of *Bambusa Fortunei variegata*, *Azaleas*, and *Panicum variegatum*. A collection of Cape *Pelargoniums* was also sent from Chiswick, some of which were curious, and several of them attractive. One of the best was a seedling raised by Col. Trevor Clarke from the good old Rollisson's Unique, and is a very pleasing colour, much paler than the parent. Mr. J. J. Wheble, Bulmershe Court, Reading, exhibited cut flowers of *Azalea pontica*, a brilliant group arranged in shallow pans, having been cut from a plant obtained from Messrs. Veitch & Sons fifty years ago. Its colour is orange scarlet, and is not surpassed by many modern varieties.

Plans of the grounds at Preston, where the great provincial Exhibition of the Society is to be held, and of the large exhibition tent, were exhibited in the Council room. They were closely examined by horticulturists, and did not meet with unqualified approval. The numerous and deep sinuities in the show tent were not only considered by many to be too narrow and formal, but fears were expressed that the ever-recurring nooks would impede the progress of visitors, and they will certainly cause the plants to be staged in them at a great disadvantage.

ROYAL BOTANIC SOCIETY'S SUMMER SHOW.

MAY 22ND.

THE first summer Show of this Society is usually not only extensive but highly attractive, the plants appearing to great advantage on the raised and well-arranged mounds in the large marquee. The Exhibition this year was neither quite so large nor so superior as usual. The *Azaleas* were generally smaller than they were last year, and some of them had lost their freshness. The *Roses* in pots, which are such a grand feature in a summer show, were much less numerous than on previous occasions, as also were *Pelargoniums*. Stove and greenhouse plants, Ferns, and *Calceolarias* were excellent, and imposing miscellaneous collections were exhibited; yet the Show, although not crowded, was an excellent one, and the collections were also excellently arranged.

Their Royal Highnesses the Crown Prince and Princess of Germany, family, and suite arrived at the Show shortly after twelve o'clock, and spent a considerable time in examining and admiring the several collections. The day was fine and visitors were numerous in the afternoon, and altogether the display was well worthy of their patronage.

STOVE AND GREENHOUSE PLANTS.—In the nurserymen's class for twelve plants in flower Messrs. Jackson & Sons, Kingston-on-Thames, won the chief place with comparative ease. The finest plant was *Epacris grandiflora rubra*, about 8 feet in diameter and splendidly bloomed; *Anthurium Scherzerianum* was very fine and extremely bright; *Aphelexis*, *Statice profusa*, *Ericas ampullacea*, *obovata*, and *affinis*, and *Clerodendron Balfourianum* were also very good, the plants averaging about 4 feet in diameter, and were well furnished. Mr. B. S. Williams secured the second prize with smaller plants, except in the case of two large *Azaleas*. A very fine specimen of *Dendrobium nobile* was exhibited in this group. Mr. Peed, Roupell Park Nursery, had the third prize. In the corresponding amateurs' class of ten plants collections of remarkable beauty were staged. The Judges, after close examination and long consideration, awarded equal first prizes to Mr. Tudgey, gardener to J. F. Greswolde Williams, Esq., Henwick Grange, Worcester; and Mr. Chapman, gardener to J. Spode, Esq., Hawkesyard Park, Rugeley. *Azalea magnifica* in Mr. Tudgey's collection was quite 8 feet in diameter and closely bloomed; *Anthurium Scherzerianum* was magnificent; and extremely fine were *Aphelexis macrantha rosea*; *Ericas ventricosa*, *magnifica*, and *grandiflora*; *Clerodendron Balfourianum*, and *Statice profusa*. Mr. Chapman's plants were remarkably even in size, and were of undoubted high quality. They were composed of *Ericas Caven-dishiana*, *eximea superba*, and *odora rosea*; *Pimelea mirabilis*; *Azalea Mars*, very bright; *Dracophyllum gracile*, *Statice profusa*, an *Ixora*, *Epacris*, and *Bougainvillea*—a collection of great merit. An extra prize was awarded to Mr. Wheeler. For six plants in flower (amateurs), Mr. Chapman was awarded the first prize for very good specimens, the second honours going to Mr. Child, gardener to Mrs. Torr, Garbrand Hall, Ewell; and third to Mr. Wheeler. In the corresponding nurserymen's class Messrs. Jackson & Son were in their usual place—first. *Epacris Eclipse* and *Erica coccinea superba* were the noteworthy plants in this group. Mr. B. S. Williams was second, the white *Azalea magnifica* in this group was really magnificent; and Mr. Peed was awarded the third prize.

ORCHIDS.—A moderate-sized but attractive bank of these aristocratic plants was arranged. In the amateurs' class for six plants Mr. Denning, gardener to Lord Lonsborough, was placed first with *Lælia purpurata*, *Odontoglossum vexillarium*, *cirrhosum*, and *luteo-purpureum*, *Dendrobium thyrsiflorum*, and *Cattleya superba*, all fine; Mr. Child was placed second (*Oncidium am-*

platum majus in this collection was very good); and Mr. Heims, gardener to F. A. Philbrick, Esq., Q.C., third. In the corresponding class for nurserymen Mr. B. S. Williams was first with *Cypripedium villosum*, *Maedevallia Harryana*, *Lælia purpurata*, *Odontoglossum Alexandre* and *O. vexillarium*, and *Dendrobium thyrsiflorum*. The second prize was awarded to Messrs. Jackson & Sons, Kingston.

ROSES.—This was the first meeting of the year of the renowned champions Messrs. Turner and Paul, who agreed in true chivalric spirit to have a fair and friendly contest in the class for nine plants, leaving the lesser class of six plants (an open one according to the schedule) at the disposal of amateurs. In the great class Mr. Turner won by many points. The plants were simply magnificent, some of them marvellous. Paul Perras was 7 feet high and 8 in diameter. *La France* was in grand condition both as regards foliage and blooms. Charles Lawson and Madame de St. Joseph were splendid. Duke of Edinburgh, though smaller, was very full and glowing. Mlle. T. Levet, Maréchal Vaillant, Céline Forestier, and Juno completed the collection. Messrs. Paul and Son, the Old Nurseries, Cheshunt, who were second, undoubtedly exhibited some grand plants, notably Madame Victor Verdier, Madame de St. Joseph, and Céline Forestier. Dr. Andry had also very fine blooms; but the remainder—Marie Baumann, Madame Thérèse Levet, Miss Ingram, Paul Verdier, Victor Verdier, and Anna Alexieff, were somewhat deficient in foliage, or at least it was not so exuberant as that of the Slough plants. In the "open" class for six plants Mr. Moorman was the only exhibitor, but his plants had passed their best, and they were awarded the second prize. In the class for twenty Roses, not less than ten varieties, in 8-inch pots (nurserymen), Mr. Turner was again in the foremost place with handsome specimens. *Perfection de Montplaisir*, Madame Victor Verdier, Royal Standard, Beauty of Waltham, and Madame Lacharme were in admirable condition. Messrs. Paul & Son were second with smaller but very good plants and fine blooms. The same firm were the only exhibitors in the class for six new Roses sent out in 1876-77, and were worthily awarded the first prize. The varieties were *Magna Charta*, very fine; Madame Sophie Tropic, Duchesse de Vallombrosa, Marquise de Murinais, Duke of Connaught, Emily Laxton, and Madame de Mouchaveau, a fine Rose in excellent condition.

AZALEAS.—A few large specimens were exhibited, but generally the plants were smaller than usual. In the amateurs' class for six plants Mr. Ratty, gardener to R. Thornton, Esq., The Hoo, Sydenham Hill, was placed first for moderate-sized and well-bloomed specimens. Mr. Child was second, and Mr. Wheeler third. In the corresponding nurserymen's class Mr. C. Turner, Slough, was first with very fine informally trained specimens, in which good foliage is visible as well as fine flowers. *Souvenir de Prince Albert* was extremely fine in this collection. Messrs. Jackson & Sons were second with moderate-sized specimens. The next, an open class, was for twelve plants in 12-inch pots, six varieties. Mr. Ratty had the first place with medium-sized specimens remarkably well bloomed. The same exhibitor was first in the amateurs' class of six plants.

HEATHS.—The plants were generally small and, with a few exceptions, were not of superior merit. In the nurserymen's class for twelve plants in 12-inch pots Messrs. Jackson & Sons were placed first and Mr. Peed second. In the amateurs' class for six plants Mr. Tudgey was placed first. Very handsome were *E. tricolor Wilsoni* and *E. ventricosa coccinea minor*. *E. v. magnifica* was very large. *Tricolor speciosa*, *tricolor elegans*, and *Cavendishiana* completed the group. Mr. James Weston, gardener to D. Martineau, Esq., Clapham Park, had the third prize for small healthy plants.

PELARGONIUMS.—These always make a fine display at an early summer show. Plants of the show varieties are not grown so large as formerly, but they are none the less effective on that account, for we generally find the finest flowers and best varieties when medium-sized plants are exhibited. In the open class for nine plants in 8-inch pots Mr. James, gardener to W. F. Watson, Esq., Redlees, Isleworth, was first with very large specimens—one plant, *Prince Leopold*, was about 5 feet in diameter and very brilliant. In the amateurs' class for six plants in 8-inch pots Mr. James was again first for well grown and symmetrically trained plants; Mr. Hammond, York Lodge, Stamford Hill, was placed second, and Mr. Weir, gardener to Mrs. Hodgson, The Elms, Hampstead, third. In the corresponding class for nurserymen Mr. Turner was in the premier place with plants 2 to 3 feet in diameter. The varieties were *Archduchess*, *Troubadour*, *Isabella*, *Claribel*, *Jane*, and *Pompey*. Both plants and flowers were excellent. Mr. James was awarded an extra prize for a collection of splendidly grown fancy Pelargoniums.

CALCEOLARIAS.—The rich masses of these plants when well grown are surpassed by no others of moderately dwarf growth. We have seldom seen them better than on this occasion. In the open class for nine plants Mr. James was in his old place—first, with dwarf grandly grown specimens with heads 2 to 3 feet in diameter. The champion had, however, a formidable competitor in Mr. Rapley, gardener to R. Hudson, Esq., Clapham Common, who had the second prize with plants rather smaller than Mr.

James's, but with larger flowers and in greater variety of colour. Extra third prizes were awarded to Mr. Coppin, nurseryman, Croydon, and Mr. Ford, Windermere House, Upper Norwood.

GLOXINIAS.—These beautiful decorative plants were represented by two well-grown collections. In the open class for twelve plants Mr. C. Hammond, gardener to F. K. Hunt, Esq., York Lodge, Stamford Hill, was placed first; and Mr. Roberts, gardener to W. Terry, Esq., Peterborough House, Fulham, second. The second-prize plants were the finest—the first the best varieties.

EXOTIC FERNS.—These graceful plants are always admirably exhibited at "the Park," and on this occasion they were truly excellent. In the amateurs' class for six plants Mr. Tudgey won the first honours with grand examples of *Cibotium regale*, *Cyathea medullaris*, and good plants of *Adiantum tenerum*, *Davallia Mooreana*, and *Gleichenia rupestris* and *Mendeli*. Mr. Wheeler was placed second for smaller but healthy plants. In the corresponding nurserymen's class Mr. B. S. Williams, the only exhibitor, was placed first with an extraordinarily fine collection composed of *Cyathea Burkei*, *Dicksonia antarctica*, *Asplenium nidus-avis*, two grand *Gleichenias*, and *Davallia Mooreana*.

FINE-FOLIAGED PLANTS.—These, like the Ferns, were also excellently represented. In the amateurs' class for six plants Mr. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley, were first with a grand collection consisting of *Verschaffeltia splendida*, *Areca aspidia*, *Latania borbonica*, *Crotons variegatus* and *pictus*, and *Dasyllion glaucum*, all very large and in admirable condition. Mr. Tudgey was placed second, and Mr. Ford, gardener to J. G. Megaw, Esq., Windermere House, third. An extra prize was awarded to Mr. Fisher, gardener to F. Williams, Esq., Nightingale Lane, Balham. In the corresponding class for nurserymen Mr. Williams was awarded the premier prize for a superior collection.

In the open class for a group of twelve plants of *Agaves*, *Yuccas*, and *Cycads*, Mr. Rann, the only exhibitor, was awarded the first prize. *Cycas circinalis* and *C. revoluta* were large and in splendid condition, the *Agaves* were small. In the class for twelve Alpine plants in pots Mr. R. Parker was awarded the chief prize.

The 'miscellaneous exhibits, which were extensive and highly meritorious, contributed greatly to the success of the Exhibition. Extra prizes were awarded to Messrs. Veitch & Sons for a magnificent group of *Rhododendrons* and Japanese Maples; to Mr. B. S. Williams for a large and rich collection of new and fine ornamental-foliaged and flowering plants; Messrs. Lane & Son for a fine group of *Azaleas* and cut blooms of *Rhododendrons*; Messrs. Rolleston & Sons for a choice collection of ornamental-foliaged and Alpine plants; Messrs. Osborn & Sons for a remarkably healthy collection of *Palms*; Messrs. Cutbush & Sons for *Rhododendrons*; Messrs. John Laing & Co. for a rich and varied group of stove and greenhouse plants; and Mr. Heims for a capital collection of *Orchids*. Mr. Ware, Tottenham, exhibited the useful forcing *Pink Derby Day* and other flowers; and Mr. Rapley extremely dwarf *Cockscombs*. They were extremely fine considering the earliness of the season.

Certificates were awarded to Mr. B. S. Williams for *Dendrobium superbiens*, *Crotons Prince of Wales* and *Queen Victoria*, *Draecenas Scottiae*, *Berkleyi*, and *Fredericki*; *Calyptronoma Swartzii*, *Dendrobium bigibbum superbum*, *Ptychospermum rupicola*, *Asclepiha plumosa*, *Sadleria cyatheoides*, and *Anthurium Dechardii*; also to Messrs. Veitch for *Amaryllis media*, *Adiantum cyclosum*, *Coleus George Bunyard*, *Crinum Verschaffeltianum*, *Platyterium Hillii*, *Areca gracilis*, *Ptychospermum rupicola*, and for *Rhododendrons Crown Prince* and *Crown Princess of Germany*.

NOTES AND GLEANINGS.

THE great SUMMER SHOW OF THE ROYAL HORTICULTURAL SOCIETY, which opens at South Kensington on the 28th inst. and continues for four days, is expected to be a very large and imposing one. The prizes offered are very liberal. In the open class for twelve stove and greenhouse plants the amounts offered are £20, £15, and £10. In the nurserymen's and amateurs' classes for eight plants the prizes are respectively £10, £7, and £5. *Orchids* are generously provided for, the prizes in the amateurs' class for fifteen plants being £20, £15, and £10: amateurs have also a class for ten plants with prizes of £12, £8, and £5. Nurserymen are offered £15, £10, and £7 for fifteen plants, and £6, £4, and £2 for six plants. Sir Trevor Lawrence, Bart., M.P., also provides a prize of £10 for the best specimen *Orchid* not made up—that is, not a group of several plants in one pot. The prizes for *Azaleas*, *Ericas*, *Palms*, *Roses*, &c., are such as may be expected to bring out the best plants in the country, and prizes of £10, £7, and £5 are provided for a group of miscellaneous plants arranged for effect in a space not exceeding 300 square feet. Amongst the special prizes we observe that Mr. Bull offers twelve silver cups for plants of his introduction, and Mr. F. Gallop, Brighton, provides prizes of £10, £7, and £5 for twelve plants of Miles's

Hybrid "Spiral" Mignonette to be grown in 6-inch pots. Good prizes are also provided by the Society for fruit and vegetables. The charges for admission to the Show are such as ought to insure a large attendance of visitors. The first day, Tuesday, is a 5s. day, or 3s. 6d. if the tickets are purchased previously; Wednesday and Thursday are 1s. days; and on Friday the industrial masses can obtain admission for the low charge of 6d. each.

— At the READING HORTICULTURAL SOCIETY'S SHOW, which is announced to be held on the 23rd inst., we are informed that, besides the liberal prizes provided by the Society, a Veitch memorial medal and a prize of £5 will be offered for three stove and greenhouse plants, Orchids excluded.

— A MEETING of the promoters of an INTERNATIONAL HORTICULTURAL EXHIBITION was held at South Kensington on Tuesday last to consider the desirability of holding such an exhibition in London in 1879. G. T. Clark, Esq., occupied the chair. There was a good attendance of the leading horticulturists, among whom were Messrs. Veitch, Williams, Bull, W. Paul, George Paul, Baines, Wills, Dean, Kellock, Moore, Rollisson, Dr. Denny, Dr. Hogg, and others. It having been decided at a preliminary meeting that an International Exhibition shall be held in London in 1879, that decision was confirmed, and a Committee was appointed to carry out the arrangements, and Mr. Thomas Moore was chosen Secretary.

— AMONGST the trials of plants at Chiswick this year not the least interesting is the collection of CAPE PELARGONIUMS. The Society has obtained upwards of sixty species and varieties, many of which are extremely pretty. One of the most distinct is *P. hypoleuse*. The flower is perfectly round, and resembles in form the small wild *Convulvulus*. The colour is pale lilac, with distinct dark purple radiating veins and a white disk. It is very attractive, and is suitable as a decorative plant for the front row of a greenhouse stage.

— ONE of the most noticeable features in Messrs. Osborn and Son's nurseries at Fulham just now is the collection of HARDY AZALEAS. Many of the shrubs are 8 or 9 feet in height and from 7 to 9 feet through, and some even more, and the effect of their great and varied mass of colour is very imposing. Amongst the most noticeable varieties are *A. pontica macrantha*, bright yellow, perhaps the largest flower of the group; *Atro-rubens*, deep orange; *Aurantia*, reddish orange; *Elegantissima*, reddish orange, upper petals bright orange; *Coccinea* major, very fine and effective; *Lutea rubicunda*; *Magnifica*, cream colour, good truss, and flower quite distinct; *Speciosa*, very free and attractive; *Grandinosa*, reddish crimson, very rich; *Gloriosa*, a charming variety; *Electa*, a dense-habited variety, and very pretty; *Incarnata*, a fine flesh-coloured variety; *Viscosifera*, very pale yellow, but telling; and *Ne Plus Ultra*, very fine. These are only a few of many that are contained in this remarkable group; there are many not open yet, so that the collection will be attractive for some days to come.

— Few things impress visitors to our nurseries more than observing the immense numbers of plants or trees of particular kinds that are provided to meet the public demand, and it becomes a matter of wonder to them, as indeed it well may, as to where the surprising numbers of Vines, Roses, and Orchids go. One of the most extraordinary IMPORTATIONS OF ORCHIDS that have ever arrived in this country has been received recently by Mr. Bull at Chelsea. We are informed a small selection of ten thousand plants was sold at Stevens's rooms the other day, but the abstraction of even that considerable number was scarcely perceptible. If supply creates demand, as it does in the case of so many commodities, Orchid culture should receive a great impetus by the arrival of such an enormous importation as the one alluded to. Amongst the established Orchids some beautiful varieties of *Odontoglossum vexillarium* are flowering, and *O. Pescatorei* and *O. crispum* have spikes of great massiveness. Next to the Orchids the Lilliums and small plants of the Liberian Coffee arrest attention by the remarkable numbers in which they are represented.

— THE crops of CABBAGES in THE LONDON MARKET GARDENS are this year unusually extensive, early, and fine. For some weeks past enormous quantities have been transmitted to the various markets at prices considerably lower than the growers are in the habit of receiving, yet when the Cabbages are retailed in the markets there is no material reduction in prices to consumers. It is commonly supposed that the products of the vegetable fields near London are wholly disposed of in the metropolitan market; but this is not so. On

the contrary, hundreds of tons of vegetables are sent by train to the large towns in the north—Liverpool, Manchester, Leeds, Bradford, &c. Indeed, of the Cabbage crop which is now being cleared it is probable that quite half of the bulk is sent to the north, if we may judge by the railway vans that are in the fields every morning as soon as it is light. In this way hundreds of piled-up loads, representing many tons of Cabbages, are sent away, and in the course of a week the greater portion of the Cabbage crop will be cleared off the land.

— WE have seldom seen such a profuse display of BLOSSOM ON THE HOLLIES as during the present year. Although the shrubs generally produced unusually large crops of berries during the winter they have lately been thickly clustered with white flowers. On some of the splendid specimens in Victoria Park we observed last week large clusters of scarlet fruit still adhering to the branches, and between the fruit the blossom was forcing its way and expanding. Other specimens, from which the berries had fallen, were just setting their fruit, and the ground in some places was quite white with fallen petals. This circumstance, and the fine weather prevailing, are good indications that Holly berries will again be plentiful for Christmas decorations.

— OWING to the extremely mild and genial weather that has lately prevailed BROCCOLIS have come in "all at once," and there has recently been a "glut" of them in the London market. Almost every greengrocer's shop and costermonger's barrow contains huge piles of white close heads which have to be cut and sold at such prices as they will realise, for if left on the ground the heads speedily expand and are worthless. Splendid heads are gladly sold retail at 1d. each and even less; and when it is considered that the middlemen usually secure the lion's share of the profits on vegetables, Broccolis this year can scarcely be remunerative to the cultivators. The public, however, having a share in the advantages incident to the season, and since the great bulk of consumers have usually to pay so dearly for fresh and wholesome vegetable food, we cannot begrudge them the facilities they are at present enjoying in the supply of Broccolis.

— EXCELLENT as the GRAPES have been at Loxford Hall during past years the crop this year is as promising as ever. When we saw the Vines a short time ago we were much impressed with the great cleanliness and healthy hue of the foliage, the thinly trained laterals, and the regular crops of fruit in the different houses. It is evident that the syringe is very little employed, if at all; but insects are kept at bay by promoting stout foliage and by the fumes of ammonia from fermenting material placed in the houses. Buckland Sweetwater and Black Hamburgs are bearing excellent crops, and there is an admirable set of Canon Hall Muscat. The advantage of training up young rods is very apparent, for it is on those that the best Grapes are produced. Mrs. Pince, however, is showing splendidly on the same spurs which have produced fine fruit for nine or ten years. Duke of Buccleuch is carrying two or three bunches containing fine berries, but there are manifest signs of rust, from which other varieties in the same house are quite free. Muscat of Alexandria growing in a narrow border about 3 feet wide and 4 or 5 long quite fills a moderate-sized house, the Vine being grown on the extension system, and the rods trained down the rafters from the back to the front. The crop is a very fine one, and the berries have set with great freedom. Although a genial atmospheric moisture is provided in the houses there is no semblance of steaming and no air-roots on the Vines.

— WE warn our readers not to betray the place where any RARE PLANT is to be found. The habitat of one of the scarcest of the Veronicas was told by us, and the plant has been extirpated by insatiate botanists. Sir Henry Holland records a similar experience. He says, "I made myself a frequent guide to those who came to obtain specimens of the *Saxifraga Hirculus*, growing on a small detached spot in a marsh close to Knutsford, the most southern English locality, as I believe, in which this plant has been found. Years after, when I came to look for it on the well-known place, it had wholly disappeared."

— THERE were many PLANTS in BLOOM in the open air at Eastertide in Glamorganshire which do not flower so early outdoors in all parts of the country. Lily of the Valley, Narcissuses, Tulips, Forget-me-nots, Anemones, &c., were then blooming. Against the church wall at Margam a plant of *Clianthus carneus* was a fortnight ago bearing many drooping clusters of its curious-shaped pale red flowers. Close to it Climbing Devoni-

ensis Rose is flowering freely. Gloire de Dijon is still more advanced, and the miniature, perfectly rose-shaped, lemon-coloured, double cherry-like blossoms of the lovely little Banksian Rose are coming out in profusion. A red Camellia covering about 5 square feet on the wall has over one hundred blooms fully open at the present time. One Double White Camellia bush growing amongst other shrubs has many hundreds of flowers expanded now, and many are over, but the later they are in blooming the better, as the blooms do not remain long perfect early in spring.

— A NEW CIGARETTE PAPER.—It is stated, says the "British Trade Journal," that a Spanish firm of papermakers are producing a kind of cigarette paper made from Watercress. It is said to be much less irritating in smoking than the ordinary description, and to have a beneficial effect upon the lungs in pulmonary disease.

MELBOURNE BOTANIC GARDENS, VICTORIA.

WE have received Mr. Guilfoyle's (the Garden Curator) report of these gardens, and are very pleased to read the details, for they are all satisfactory, except those relative to the Rose. Some of our readers might aid the Curator by sending cuttings.

Mr. Guilfoyle says—"The Fern Gully in the Botanic Gardens is now one of the great attractions in the grounds, and it has quite fulfilled the expectations I expressed concerning it in my first report. The large Ferns have flourished, and now spread their cool green fronds over the small species growing beneath their shade. The aspect of the place is quite a natural one, as it should be; and while the shelter trees transplanted there afford the requisite shade, it has been freely planted with Stag's-horn and Elk's-horn Ferns, which give increased beauty and appropriateness to the spot. A number of tall Tree Ferns from Mount Macedon have been planted here, and are growing vigorously. I am indebted to Walter Hill, Esq., Director of the Brisbane Botanic Gardens, and Lewis A. Bernays, Esq., F.L.S., of the Brisbane Acclimatisation Society, for some valuable Ferns which were very scarcely represented in the Melbourne Gardens. From these gentlemen I received specimens of the Platyceriums and Bird's-nest Asplenium, &c., with which the stems of the Tree Ferns—*Alsophyllas*, *Cyatheas*, and *Dicksonias*—and many of the shade trees were clothed, forming capitals to the columns of the trunks and relieving the dull hue of the stems with their pale green. Scores of large trees redundant and useless in other portions of the grounds were transplanted to this Fern Gully (over two hundred specimens) for the protection of the Ferns. Climbers have also been extensively planted. Banksian and Cloth of Gold Roses, *Loniceras*, *Ipomæas*, *Bignonias*, *Solanum jasminoides*, *Mandevilla*, climbing *Pelargoniums*, &c., were placed at the stems of the trees, and these will ere long, supplemented by the umbrageous trees, afford a canopy of shade. Amongst the trees are fine specimens of *Alnus*, *Grevillea robusta*, *Dammara robusta*, *Robinia*, *Buddleia*, *Brachychiton populneum*, *Brachychiton acerifolium*, all of which are thriving. A tall Tree Fern 40 feet high and quite a novelty has been planted here. It is, I believe, an undescribed species, but is probably a *Cyathea*. This fine specimen was obtained in the Cape Otway Forest a month or two ago and transplanted to the gardens. If it lives it will be a great acquisition to the Fern Gully. The bridge which formerly crossed the Gully, and which was not only unsightly but in a state of decay and dangerous to visitors, has been removed. In my last annual report I mentioned the removal of the aviaries from this spot and the filling-up of a waterhole near them. The whole of this part is now included in the Fern Gully. Many of the trees formerly growing in the spaces now occupied by the new lawns were removed to this Gully. The walk replacing the bridge now dips into the hollow, affording a good view of the Fern Gully, with a background at the lower end of the islands in the lake. The overflow from the new reservoir may be here used most effectively in the creation of a trickling stream winding over the rocky boulder-strewn bed of the Gully. The sight and sound of such a stream would be in harmony with the surroundings, and add to the natural appearance of the spot. A rockery has been made on the Buffalo-grass lawn near the Gully. The Ferns both large and small have developed luxuriant fronds, and in summer time the cool sequestered shade of the spot is generally appreciated. It was suggested when the Gully was in process of formation that the Ferns would fail before the trees planted could afford the top shade, but I am happy to

say these prognostications have proved worthless, the matter being successfully accomplished during the second season for transplanting since my appointment. The Fern Gullies of Victoria should be imitated in these Gardens as opportunity allows. In these, more than anything else, the highest order of beauty is in the natural aspect given. Many cartloads of stones have been brought from the grounds of the Kew Asylum for making rockeries, &c., in the Botanical Gardens."

PLATYCERIUMS.

In this genus we have a few plants of great beauty and entirely unique appearance, as they differ totally in habit from all other known Ferns. In the general arrangement of Ferns we find them associated with *Acrostichums*, from which, however, they are very distinct; indeed the veteran pteridologist J. Smith, in his "*Historia Filicum*" lately published, elevates them into a distinct tribe (*Platycerieæ*), of which this genus is at present the only representative. This view has not found much favour amongst those who make Ferns their study from dried specimens only, but those having paid much attention to these plants in a living state will feel convinced of the correctness of this author's views. These remarks, however, will perhaps have little interest to the amateur horticulturist, and we shall therefore at once come to the adaptability of *Platyceriums* as ornaments to the fernery.

In the first place *Platyceriums* are epiphytall Ferns, growing naturally on the branches and in the forks of the forest trees, sometimes low down, at others high up amongst the topmost branches, which the barren shields or fronds seem to clasp for support, whilst the long, forked, fertile fronds are produced at right angles with them. To grow these plants successfully they must be suspended in baskets or placed upon a broad block of wood after the manner of an Orchid, when if kept moist the spongy roots will soon adhere to the wood, and the plant commence to put forth its beautiful fronds, which from their peculiar ramifications have led to their popular name of "Stag's-horn Ferns." Another system is pot culture; but to say the least of this it is attended with more trouble, and it does not allow the plants to display their beauties in the best manner. Pot culture is adopted in the fernery at Kew for these plants, but in this case the pots are made with a low side, so that the plants stand in the same position as when grown upon blocks. Even this system we should not advocate, for our experience with these particular pots and plants has fully confirmed us in the block or basket system. It will now be seen by our readers that the culture of *Platyceriums* or Stag's-horn Ferns is very simple; indeed nothing is required but a little sphagnum moss about the roots, and a due supply of heat and moisture. The blocks for these plants should be broad, because the barren fronds are thus compelled to spread over instead of clasping round it, and the beauty is enhanced. We have heard blocks condemned on account of their liability to decay; but this is no real obstacle, as we have known plants of *P. grande* to occupy the same piece of wood for fifteen years.

Platyceriums are mostly stove Ferns. It is true that *P. alci-corne* and its varieties thrive in the greenhouse, but always make finer specimens when treated to stove heat. Scale and thrips will attack these as well as most other plants. In the case of the former careful hand-picking is the only remedy. The latter is generally brought about by too much heat and too little moisture in the atmosphere, the remedy therefore is obvious. The following are all the species in cultivation; all are distinct, and all deserve a place in the fernery of the amateur.

P. alci-corne.—The barren fronds of this plant are nearly round, closely overlapping each other, sessile, clothed with stellate hairs; colour light green. The fertile fronds stand almost at right angles, narrow at the base, becoming broader as they ascend, and forked at the apex; dark green above, clothed below with stellate hairs, the patches of dark brown sori occupying the lobes. It will thrive either in the greenhouse or stove, but, as before remarked, attains finer proportions in the latter. Native of the Malay Archipelago and Australia.

P. alci-corne majus.—A remarkable and handsome form of the species. The sterile fronds are very large and sub-erect, and the fertile fronds are also broader with more divided margin. It is a distinct and very ornamental variety. Native of Australia.

P. biforme.—A rare and little-understood species amongst cultivators, as we have frequently seen *P. Stemmaria* grown for it, from which, however, the true plant is very distinct. Sterile fronds broad and overlapping each other, deeply forked

on the upper edge. Fertile ones long, pendulous, and much branched; the segments narrow strap-shaped, whilst the portion of the frond which bears the sori is reniform. Native of Borneo, Moulmein.

P. grande.—This is a truly noble species, the barren fronds

spreading out several feet if placed upon a suitable block. They are broad and imbricating, deeply forked on the upper edge but smooth below. The fertile fronds grow out from the base of the barren at right angles, attaining a length of some 3 feet (in strong specimens), becoming pendulous. Whole



Fig. 59.—*PLATYCERIUM HILLII*, F.M.

plant apple green, clothed with a pubescence of stellate hairs, which give it somewhat a hoary appearance. Native of the Malay Archipelago and Australia.

P. Hillii.—We have some doubts as to this plant being distinct from the one distributed by the Messrs. Veitch & Sons under the name of *P. alcornae majus*. It is apparently a very handsome form, and seems to differ from the last-named variety in the greater breadth of the apex of the frond and in the more numerous and deeper ramifications, as will be seen

from our illustration (fig. 59), which is taken from a photograph received from Queensland, and for which we are indebted to the kindness of Mr. Hill, Curator of the Botanic Garden, Brisbane, after whom it has been named by Baron F. Mueller.

P. Stemmaria.—This species is also known by the name of *P. æthiopicum*. It is at once distinct from all the other species, and differs from them inasmuch as the sterile fronds only live one season, at the end of which time they turn brown and remain on the plant for many years, the young ones soon

covering them on the return of spring. They are large, sessile, sub-ascending, 1 to 2 feet in diameter, and bright green. Fertile fronds 1 to 2 feet long, broad, and coriaceous in texture. dichotomously forked at the apex. The sori occupy the apex of each lobe on the under side. Whole frond clothed with a dense, hoary, stellate pubescence. The roots are viviparous and at intervals produce young plants, so that this species will if undisturbed soon make an immense specimen. Native of West Africa.

P. Willinkii.—A species of very recent introduction, which has not yet shown its true character under cultivation; it is, however, an extremely beautiful plant, and is sure to be in great demand when better known. Sterile fronds sessile, erect, imbricating, dichotomously forked all round the edge, and upwards of a foot in height. Fertile fronds produced from the sinuses of the sterile ones, usually three together, 2 to 3 feet long, pendulous, narrow, and much divided into long narrow segments, bearing the sori near the tips on the under side. Native of Java.

ONIONS FOR PICKLING.

In highly enriched private gardens about one of the most difficult crops to supply to the cook's satisfaction is the crop of pickling Onions; yet the London market gardeners manage to produce a supply of "picklers," although their ground is at least as highly manured as that in the best cultivated private gardens. It is well known that if the subsoil of even the richest ground is brought to the surface in any large quantity, that, to use an expressive and familiar phrase, "nothing will grow in it." That, however, is exactly correct, for the keen and observant market gardeners have found that that is precisely the kind of soil for producing small, round, marble-like Onions. To produce a supply of suitable bulbs they simply trench a portion of ground somewhat deeper than before, bringing up 5 or 6 inches of sour subsoil to the surface, and in this they sow the seed very thickly at the present time. The plants are not thinned, and by the time they are 6 inches high they have exhausted the soil so much that the blade turns yellow and the bulbs mature, and about July they are pulled up and spread on the ground to prepare for market. Nothing at that period of the year arrests the attention of the visitor to the market grounds more than the enormous quantities of matured Onions about the size of hazel nuts that are provided for pickling for the million. The crop is in itself a remunerative one, and it is obvious to practical gardeners one turn-over of the ground lately occupied by the "picklers" renders it admirably suited for any crop that may afterwards be grown in it. This practical hint can scarcely fail being useful to many gardeners at this time for carrying it out and producing with certainty a full supply of pickling Onions.

CHAPTERS ON INSECTS FOR GARDENERS.

No. 21.

THE great group of the Geometrine Moths, which contains nearly or about three hundred species, is one of the best defined of the groups in the order Lepidoptera, and though we have (as seems to be the case in almost every natural division) a few species that present notable peculiarities, a strong family likeness runs through the whole. It is only necessary to name such well-known insects as the Gooseberry Moth, sometimes misnamed "Currant," and the Winter Moth, to present at once an illustration of what a Geometer is; but it is not to be supposed that the majority of the species are as injurious in our gardens as are these two. The group contains some very rare species, and a good many never found at gardens or plantations, while even of those that frequent cultivated ground a proportion are not plentiful enough to do harm. Yet there are within the group sundry species beside the above-cited which the horticulturist would like to find "conspicuous by their absence." It is a group even more recognisable in the caterpillar than in the moth condition, for the caterpillars, lacking six of the pro-legs or claspers with which their brethren in the other groups of moths are endowed, adopt a singular mode of progression, which originated the name of Geometers—i.e., "Ground Measurers," applied to them. They have also been termed Loopers, because in walking they bend or loop the central part of the back. Suppose a Geometer caterpillar at rest (the position of rest, by the way, often implies with them a swinging of the anterior part of the body in the air in a manner that appears to us far from comfortable) and then

resolving to begin a perambulation: tightening the hindmost claspers on the leaf or branch the caterpillar stretches out its head towards the point that offers some attraction, and grasps the substance with the fore legs as far off as it can. The body is thus straightened, and the next motion is to bring up the hind legs close to the fore legs, the middle of the body then bending into the loop. Again the head is advanced, the same process repeated, which, though it cannot be rapidly described, carries the caterpillar on at a good speed; indeed, in the case of some species much of the life of the caterpillar is spent in seemingly purposeless wandering over the food plant. Therefore it follows that if a Looper caterpillar is started, say, on a walking-stick 3 feet in length, the number of strides taken in passing along it can easily be counted. The moths of this group have mostly thin bodies, and the wings are broad. Their favourite attitude on walls or tree trunks is to sit with them extended. The hind wings are seldom tucked under, as is so commonly done by fat-bodied species. The fore and hind wings often resemble each other, the pattern or design being sometimes continued over all the wings, as in several of the "Thorns," that are of frequent occurrence in parks and shrubberies. Sober tints of colour also prevail.

The long muster roll of Geometers is headed by that singular insect the Swallow-tailed Moth (*Uropteryx sambucata*), our sole British representative of a large family, and which flits languidly about the hedges in the summer, having occasionally from country folks the name of "moth owl," given indiscriminately to a number of nightfliers of pale or dull hue and slow flight. Its caterpillar when nearly adult has often been mistaken for a twig. In food it has some eccentricity, for though it usually feeds on the Elder or some fruit tree, it now and then condescends to the humble *Myosotis*. The family of the Thorns contains some species with stoutish bodies, such as, for example, the August Thorn (*Ennomos angularia*), common even in London parks, the caterpillar feeding on Elm and Oak. Probably the handsomest Thorn is the Lilac Beauty (*Pericallia syringaria*), but it is not abundant enough to injure the Lilac or any other shrub the caterpillar may select for food. The only species in the family that lies under suspicion is the Brimstone Moth (*Rumia crataegata*), yet this generally limits itself to the Whitethorn. In the next family, the *Amphidasydæ*, we have stout-bodied moths. One out of the six is the Brindled Beauty (*Biston hirtaria*); not beautiful to gardeners when the caterpillars swarm on Pear or Plum trees, as they do in some seasons. Amongst the Boarmidæ we have a considerable variety. One pretty species rather common is the Waved Umber (*Hemerophila abruptaria*), seen on our palings in April or May; the caterpillar eats the leaves of the Lilac or Rose. *B. perfumaria*, misnamed the Willow Beauty, since it has no special elegance, nor does it resort to the Willow, when a caterpillar attacks the uninviting foliage of the Ivy; and the freckled caterpillar of *Cleora lichenaria* manages to live on the little lichens on palings, as do two others in that genus. In June we find about gardens the pretty *B. repandata*, deserving to be called Mottled Beauty, and which, charmed by its delicate markings in grey, orange, and brown, the gardener may well refrain from crushing when he sees it on a wall, for the caterpillar does little damage to the Plum or Birch, its wonted food.

The Emerald Moths present a curious group of varying size, all of a greenish tint but not injurious. The Little Emerald (*Iodis lactearia*), swarms in many copses. Of one species, *I. vernaria*, it may be said in the feminine phrase, that its wings are of a "most lovely green." Personally, I always associate that species with Ham Common, for I first captured specimens there, and as it happened caught nothing else at the spot, which is perhaps discommenced now like other open places near London. In the *Acidalidæ* we have a group of small species of some delicacy of appearance, many species from their markings having the name of "Wave" applied to them. The Small Dusty Wave, a little moth which might be covered with a shilling, is common in shrubberies. Several of these have their wings more or less "scalloped." The small group *Macaridæ*, containing a few scarce species, brings us also to the Moth (*Halia wavararia*), the caterpillar of which is a Gooseberry pest in some years; it will feed also, as I have observed, on other plants in the kitchen garden. Individuals of the same brood will be found of such different colours that we might be led to think they were not of one species. Like many other troublesome caterpillars, it is best dealt with by careful hand-picking. *Panagra petrararia*, also called the "Brown Silver-line," is notable in another group of smallish

species, because the caterpillar feeds on Ferns, preferring the common Brake. It will be within the observation of every gardener that the various species of Ferns are seldom attacked by caterpillars, though they have their share of other insect enemies. Amongst the Fidonidae, *F. atomaria* is a common and pretty species, very partial to heaths and commons, where the caterpillars subsist on the species of Trefoil.

A small family of five species contains that important species the Gooseberry Moth (*Abraxas grossulariata*), and the nearly allied *A. ulmata*. Much has been written on the history of this insect, so annoying in its attacks upon Gooseberry bushes, and less frequently upon the species of Currant. It would probably be far more abundant were it not that the hibernation of the caterpillars exposes some portion of each brood to the chance of dying in winter, either from the weather or through the researches of hungry birds. Cold, however, they manage to endure pretty well, for a naturalist has reported that he found a number of them so congealed as to chink like little pebbles when they were thrown into a garden pot, but afterwards they revived. They will not always remain on the bushes through the dull season; many hide in nooks, where they escape birds and also gardeners. It is a peculiarity in *A. grossulariata* that it occurs along hedges and in woods as well as in gardens, and I have a keen recollection of collecting several of these caterpillars from a pollard Oak. And the fact that they feed on the Hawthorn occasionally, suggests that they might attack allied plants under culture. *A. ulmata*, the Clouded Magpie, is a handsomer but less common species, with a gaily-coloured caterpillar that feeds upon the Elm.

The family of the Hybernidae contains only a few species, but the caterpillars are very destructive in several instances, and we have in this family the curious circumstance that the females are wingless; notwithstanding this they are very prolific. One species, the Winter Moth (*Cheimatobia brumata*), often requires all the efforts of the gardener to keep it down; the injury done by it is increased by its eagerness in attacking buds and its skill in concealing itself amongst the foliage. The Mottled Umber (*Hybernia defoliaria*) is another species which frequently displays its thousands of caterpillars, but these confine themselves usually to the woodlands. In the "large small family" of the Pugs—to use an Irishman's phrase—we have some species that occur in gardens, the larvæ having a penchant for the flowers of plants, yet they are hardly to be called pests, but simply annoyances. There is something in the form of the moths (*Eupithecia*) so peculiar that when one has once been recognised it can hardly be forgotten, and they are common on walls and fences everywhere in the summer months, but very difficult to distinguish from each other. In fact, the species in *Eupithecia* are a sort of standing puzzle to entomologists. One that appears in most gardens from May to August is named the Lime Speck (*E. centaureata*); its food, however, is usually outside the garden boundaries on such plants as the Ragwort and the Hemp Agrimony. Several of the species subsist on the flowers of the Golden Rod (*Solidago Virgaurea*) and some on the Clematis or allied plants, and a few on the leaves of trees.

About sixty species more, belonging to a variety of genera, complete the Geometrine group, most of the moths rejoicing in the English name of "Carpet," with some prefix expressing colour or character. Such names seem to have arisen from a fancied resemblance to patterns less common now than formerly. The caterpillars present much variety in appearance and tint; some are very sluggish, as also are most of the moths, though a few are distinguished as "highflyers" in the genus *Ypsipites*; the capture of these is rather difficult to effect, but they are harmless. In most counties the Garden Carpet (*Melanippe fluctuata*) is abundant, and it is almost the only species that can be regarded as a foe to horticulture, the principal food of the caterpillar being Brassicaceous plants. There are, unfortunately, two broods every season.—J. R. S. C.

WORK FOR THE WEEK.

KITCHEN GARDEN.

CAULIFLOWERS from the first outdoor sowing will now be fit to plant out, and should have an open situation and well-enriched soil. Brussels Sprouts and Savoys from the early sowings should be planted out without delay; the latter will do 2 feet apart every way, but Brussels Sprouts should have 80 to 86 inches space. Beet must not longer be delayed in sowing if roots of fair size are required. Large kinds, as Whyte's Black, &c., may be had quite large enough by sowing early in June, especially in warm situations. Chicory also is liable to run to seed if sown

too early: the end of the present month—and it may be deferred until early in June—is a good time to sow the seed in warm localities. Another sowing of Runner and Dwarf Kidney Beans should be made. Celery, as it becomes ready trenches must be attended to, as when the plants are allowed to become large before being planted they receive a check which causes them to "bolt." Except for the very early crops single rows are preferable, and in preparing the trenches well-decomposed manure should be used plentifully and dug-in in a moist state, leaving from 4 to 6 inches of soil upon the surface. It is well if the transplanting can be done in moist weather. Advantage should be taken of showery weather to thin root crops; the plants not only draw more readily then, but those left for the crop are not nearly so much disturbed or otherwise suffer by the removal of the superfluous plants. Peas are not generally thinned; they, however, well repay any attention in that respect; thinning them to about 2 inches distance apart, the crop is rendered finer in quality, the plants more healthful, less subject to mildew, and less affected by drought, and is also more enduring where the plants are not excessively crowded. Leeks sown early should be at once planted out in well-manured trenches. Proceed with the planting-out of Vegetable Marrow plants, choosing for them a sheltered situation, but fully exposed to the sun, abounding in manure, and where water can readily be supplied in dry weather. Sow Cauliflower for the Michaelmas crop and for taking up when the heads are being formed, and protected for winter use. Veitch's Autumn Broccoli is a valuable variety, and much harder than Cauliflower; plants of it should be planted out the earliest opportunity. Tomatoes, plant out against walls. They may also be planted in good, rich, light soil in an open yet sheltered situation in rows 8 feet apart, and 2 feet asunder in the rows, training the plants to stakes 8 feet above ground. In warm situations they do well in that way, being well supplied with water in dry weather, and the rows mulched with short manure.

HARDY FRUIT GARDEN.

Fruit trees have very healthy and abundant foliage, yet it should be carefully examined for caterpillars, which if allowed to have their own way soon disfigure both leaves and fruit. Aphides also are very assiduous, and spread with amazing rapidity; they must be met by diligence in the application of insecticides and washing the trees thoroughly and repeatedly with the garden engine; if that fail diluted tobacco water must be had recourse to, applying it with a syringe during a calm evening. A solution of soft soap, 2 ozs. to the gallon, is a capital insect destroyer. The nets, canvas, or other means of protection should now be removed, the trees having sufficient foliage to protect the fruit from any frosts we are likely to experience after this. Peaches and Nectarines should be attended to in disbudding, and they, with other trees trained to walls, &c., must have timely attention in training-in the leading shoots, nailing or tying them in loosely so as to allow plenty of room for the swelling as growth advances. The thinning of the fruit of Apricots, Peaches, and Nectarines should be attended to, but do not be in too great a hurry; wait until the fruit is swelling freely, and then remove the smallest and those too crowded and badly placed. It will be well to leave a moderate number of extra fruit to allow for casualties, as from the imperfectly ripened wood of last year it is probable that more than an average will succumb to stoning. The very healthy state of the trees will allow of the fruit being left rather thickly without any undue strain upon their energies. Bush fruits are very heavily cropped in some districts, while in others the bushes are almost barren. Where it is intended to allow most of the fruit to ripen upon the Gooseberries, they, with the Currant bushes and Raspberries, should be mulched with short manure, especially in dry shallow soils. Similar remarks apply to bush and other forms of dwarfed Apple, Pear, Plum, and Cherry trees. The mulching should be applied when the fruit is fairly commencing swelling. A handful or two of bone dust sprinkled upon the soil around the trees before applying the mulch is very beneficial, especially to soil deficient of calcareous matter. Mulch Straw berries with long litter or some kind of material that will keep the fruit clean. If fine fruit are wanted "truss it up"—i.e., place forked sticks in the ground, so as to support the truss between the fork. Dr. Hogg, British Queen, and other choice large-fruited varieties are well worth any extra attention, thinning the fruit early. Three or four fruit upon a truss are sure to attain to a much larger size than twice the number. For producing "monster" fruit for exhibition purposes the centre or "king" fruit only should be retained. Water well in dry weather after the whole of the flowers are fairly expanded if the weather be dry.

FRUIT HOUSES.

Melons.—Some cultivators object to the taking of a second and third or more crops from the same plants. We could never see upon what the objection rested. It is alleged the fruit of the second crop is smaller and not so good in flavour as the first. Our experience is, that if the plants have been kept so dry during the ripening of the first crop as to impair the energies of the plants so as to render them unable to make strong young growths anew, they are of very little use for future bearing; but except in the case of extreme dryness and over first crop the plants are

as good or better than young plants. Any plants from which it is intended to take a second crop should be cut back to a healthy shoot emanating from near the collar of the plant, keeping the house rather closer, moister, and slightly warmer until growth becomes free, shading for a few hours in the hottest part of the day, and then remove the surface soil if only a little, and replace with fresh, giving a thorough watering with liquid manure. Buffalo horn manure we find a capital substance for promoting the growth of roots, and is a very handy and cleanly material. Its effects are very marked upon soft fruits, particularly Strawberries in pots. We use it in the proportion of about a tenth, calculating by bulk, to that of the compost. The primary shoots of Melons should not be stopped until they reach to within a few inches of the extent of the trellis, then take out their points. The laterals or side shoots should be thinned, removing every other early on alternate sides of the primaries, and when the flowers are fully expanded stop the shoots at one or two joints beyond each female flower. Let there be at least six or eight female blooms expanded at one time upon a plant before proceeding to impregnate them, continuing to impregnate daily until a sufficiency of fruit are set and commencing to swell freely. The essentials of a good set are activity at the roots, plenty of moisture there and a good warmth, but the surface of the soil comparatively dry, and a dry well ventilated atmosphere slightly higher in temperature. If the plants from which the fruit has been cut are decayed at the collar or infested with red spider to any serious extent it is better to replace them by young plants, removing all the old soil and commencing afresh. Earth-up the plants when the fruit is fairly on the swell, pressing it firmly. Syringe moderately early in the afternoon, and keep the shoots well stopped, avoiding overcrowding.

Pines.—Suckers potted last March will be in their fruiting pots; if not, the potting must not longer be delayed, for to keep them in small pots for any lengthened time has a weakening tendency. They should have a bottom heat of 85° to 95°. Be careful to raise the pots after the roots reach their sides, and not to over-water. All young stock will be growing freely, and should be attended to with regularity in watering, giving air, &c., slightly ventilating at 75° to 80° so as to draw condensed moisture from the leaves before the sun's rays fall powerfully upon them. Allow young stock plenty of space so as to secure sturdy growth. If too many fruit are ripening at one time a portion of the plants may be removed to a cooler house after the fruit commences colouring.

Figs.—Those ripened beneath the shade of Vines are generally at this early season insipid—worthless for flavour as compared with those in a light airy house; but much may be done towards improving the flavour by keeping the fruit free from moisture throughout the ripening process, with a free circulation of dry warm air, the temperature being maintained at 65° at night, 75° to 80° by day, rising to 85° or 90° with sun. When the present mulching is well filled with roots add another of 2 or 3 inches thickness of well-decomposed manure, it will help the trees in perfecting the second crop of fruit. The borders must not be allowed to become parchingly dry even when the fruit is ripening, and such a state of the soil with the fruit swelling would prove most disastrous to the crop and cause a rapid spread of red spider. Trees in pots from which the fruit is gathered should be well mulched with short manure, the syringe being plied freely twice a day.

Cherry House.—When the whole crop is perfectly ripe the chief consideration will be to prolong the season to preserve them fresh. Shading will do so, but it is only desirable when the fruit is exposed directly to the sun owing to the limited foliage. Free ventilation must be attended to, and in hot weather a sprinkling of the surface of the border in the hottest part of the day will assist in keeping the fruit plump. The roots must not be neglected for water, for dryness there is inimical to the development of the buds for the ensuing crop of fruit. Whenever necessary water copiously. Trees in pots will require daily attention. When the fruit is cleared off the trees syringe well twice daily, and do not expose them fully until the buds are well developed, nor remove trees in pots from the house until the buds are well formed. They may then be placed on ashes in an open situation and be duly attended to with water; the pots should be wholly or partly plunged. If aphids appear fumigate, being careful to have the foliage dry.

Orchard House.—Syringing must be resorted to every evening unless the weather be cold. The syringing is absolutely essential to keep the Peach, Nectarine, Plum, and Cherry trees free of aphids, which, however, is not always effectual, recourse having to be had to diluted tobacco water or fumigations, but care must be taken not to fumigate too strongly and to have the foliage dry. During fine weather the ventilators should be open from six o'clock in the morning until six in the evening, subject to later opening or earlier closing as the weather may determine. Abundance of water must be given to trees in pots, and those in borders must be well supplied with that element. Trees in pots should have a top-dressing of rich material; those planted out, if at all weakly, should be similarly treated. Thin out the fruit of Apricots, also

Peaches and Nectarines, which have set very thickly. Plums, Cherries, and Pears are the better of thinning, as a moderate crop of fine fruit is preferable to a heavy crop of inferior quality. In the case of trees with the pots stood upon borders the surface should be mulched 2 or 3 inches in thickness with rich manure, and the borders must be well attended to with water. It is advisable to adopt the mulching of trees planted out, because it checks evaporation, encourages the roots to the surface, and prevents the water from running off. Stop the shoots of Figs at the sixth leaf, and rub off or stop overluxuriant shoots on other descriptions of trees, so as to maintain uniformity of development—symmetrical trees.

FLOWER GARDEN.

Planting may be proceeded with, commencing with the hardier descriptions of plants, such as Verbenas, Lobelias, Pyrethrums, Calceolarias, Gnaphaliums, and the hardiest Pelargoniums, deferring planting such as Coleus, Iresine, &c., until the early part of June. It is of infinitely greater importance to have the plants well prepared than to plant out because the time of year has arrived for doing so. The condition of the plants and the state of the weather must both guide the planter. Some plant very shallow, when the plants are withered up in a short time under powerful sun; others plant deep, and the plants then do not start freely, such as Calceolarias and Pelargoniums going off at the collar. The right way is the mean of the two. Water well at planting to settle the soil well about the roots, and a sprinkling overhead in the evening of hot days will often be found better than heavy waterings, making the soil sodden and cold. Stocks, Asters, Phlox Drummondii, Marigolds, and other half-hardy annuals should be planted out as they become ready, they transplanting more safely in a small state than when large. A dull day should be chosen, watering them well, and dusting with quicklime or soot as a precaution against slugs. Dahlias should also be planted out. Now is a good time to trim Box edgings, doing it in moist weather, or the edging will have the appearance of being scorched if it be done in bright dry weather. Attend to the training of climbing Roses, Clematis, and other climbing plants; and if any are infested with aphids syringe with soft soap 2 ozs. to the gallon of water, adding a pint of strained tobacco juice to each gallon. In dry soils a mulching should be given of well-decayed manure or spent hops and liquid manure whenever the weather is hot twice a week. It is absolutely necessary to render enjoyable the rich floral display now afforded by Lilacs, Rhododendrons, Azaleas, Brooms, &c., that the grass be kept frequently mown and the walks clean and well rolled, weeds being kept under as they appear. What a truly gorgeous display is afforded by double Whin! Masses of it by the acre outvie its compeers.

PLANT HOUSES.

Greenhouse.—Primula cortusoides vars. as they go out of bloom should be removed to a cold frame. If stock be wanted they may be divided, potted in rather strong turfy loam with a little leaf soil or well-decayed manure, placing them on ashes and shading from bright sun. P. denticulata, P. nivalis, P. intermedia, and other of the Alpine section may be divided, potted singly in 4 to 5-inch pots, and receive similar treatment to P. cortusoides vars. P. verticillata sinensis treated in a similar manner forms nice plants for next season's flowering. Any that are required for seed should be continued in a light airy position until the seed is ripe, when they may be treated as before described. Lachenalias should be continued in a light airy situation, having lessened supplies of water until the foliage become yellow, when watering must cease, only affording a little occasionally to prevent the soil becoming dust dry. Tropaeolum Jarratti tricolorum should be gradually dried off, and when the foliage is decayed take the tubers out of the soil and keep them in a dry cool place through the summer. Cyclamens place in a cold frame upon ashes and water so as to keep the soil moist, and shade from bright sun during the hottest part of the day. Seeding Cyclamen sown early and potted or pricked off should be shifted into larger pots or potted off singly as the case may require, and may be stood in a cold frame, keeping them close, moist, and shaded until growing freely when more air may be admitted. Primula sinensis vars. pot off, as they become ready. Similar remarks apply to Cinerarias, both being kept rather close, moist, and shaded until established. They do best in cold frames. Humea elegans may now be raised by sowing the seed in fine soil, just covering the seed and placing in gentle heat, removing the pot to a cold frame when the seedlings are up. Chrysanthemums move into the blooming pots between now and the first week in June, it being highly prejudicial to the plants to allow them to become root-bound, particularly in the early stages. They do well in turfy loam with a fourth or fifth of decayed manure and a sprinkling of bone dust, about a tenth. The pots may be crocked with crushed bones, placing one large crock over the hole in the pot. Eight and nine-inch pots answer well for Pompones; 9, 10, and 11-inch pots for the large-flowered varieties; for single blooms 9-inch pots are large enough. The form of training must be at once determined upon. The flat form is most resorted to for exhibition, but the more upright is best for general purposes. Stopping the shoots should not be practised after the early part of June, those for

specimen blooms not being stopped at all. Arrange the pots on a bed of ashes in an open situation but sheltered from winds, affording the plants plenty of room, and never allow them to suffer by want of water. Pelargoniums as they come into flower must be scrutinised for aphids and the plants if necessary be fumigated, for if the insects are left on until the flowers expand and then fumigated a majority of the petals will fall. Assist late-flowering plants with weak liquid manure, also zonals, having the pots filled with roots, and forwarding those as yet in small pots by shifting into larger.

TRADE CATALOGUES RECEIVED.

Charles Turner, Royal Nurseries, Slough.—*Spring Catalogue of Plants.*

E. G. Henderson & Sons, Pine Apple Nursery, Maida Vale, London.—*Catalogue of Flowering and Ornamental-foliaged Plants.*

TO CORRESPONDENTS.

GOLD WEED (X).—We are making inquiries, and will publish the information as soon as our correspondent has ascertained the botanical name.

CUCUMBER GANGRENE (R. E. Knechtbull).—You will find an account of this disease in vol. 33, page 73, of this Journal. There is no cure, and the sooner you destroy the plants and clear out the soil the better. Renew the bed with soil from a fresh place.

ARRANGEMENT OF SUMMER BEDDING PLANTS (Ramalho).—We do not like your idea of independent patches of colour in the long scroll bed; the effect would be heavy and lack expression. Taking your own materials we would make a row of strong plants of Geranium Christine right along the centre, a row of Coleus on each side of it, and put a row of Mrs. Pollock Geranium outside both rows of Coleus, taking care to keep the flowers picked off Mrs. Pollock, and if you could continue to secure enough plants of Lobelia pumila grandiflora to make a chain of its charming blue miniature mounds outside Mrs. Pollock the effect would be excellent. Relegate the scarlet Geranium and Perilla to some other part of the garden, and plant the two detached beds with Verbenas and Calceolarias as you propose.

PEACH LEAVES BLISTERED (Idem).—The blistering of your Peach leaves is caused by exposure to cold winds. Protect them until milder weather ensues, and the blistering will cease. "Curl" is quite a different thing. It is caused by aphides, which, attacking the under surface of the leaf, induce a contraction of its tissues, hence the deformity. Get rid of the aphides by syringing and sponging and the leaf will become healthy, but it will always be a deformed leaf and never attain its full size. Blistered leaves, on the contrary, can never become healthy, and must be removed with caution, for it is usually the outer and most exposed ones which suffer, and while these are found to afford some protection to the under leaves retain them.

GLOIRE DE DIJON ROSE.—Mr. W. H. Lyons informs us that in his garden near Lisburn, in the north of Ireland, this flower has been cut, as well as Marchal Niel, ever since the 1st of May.

SEEDLING PANSIES (Old Subscriber, Merthyr).—The flowers received are medium-sized, well formed, have great substance of petal, and have rich colours—dark selfs. They are all good, but not large enough for the florist's standard. The varieties are well worthy of preservation for garden decoration.

WATERING AMARYLLISES (S. B.).—Amaryllises require to be copiously watered when in full growth, but it is seldom necessary to place the pots in pans of water. If the pots are excessively crowded with roots and the plants cannot be examined frequently a little water may be kept in the saucers in which the pots stand, but we only advise it as the lesser of two evils. The plants must have a very light position, and the roots must not be dry.

LIQUID MANURE FOR CUCUMBERS (G. S.).—The drainings from a hotbed, from a cowyard, and a solution of guano, are all good for applying to Cucumbers when they need a stimulant. It is impossible for us to say to what extent the drainings should be diluted, for the liquid may be much diluted already by the rains, or, on the contrary, it may be very strong. Use your own judgment, and rather err on the side of applying the liquid too weak than too strong. Half an ounce of guano dissolved in a gallon of water will produce a stimulant quite strong enough for Cucumbers. Apply the drainings and the guano water alternately when the plants require more support than the soil affords them.

NECTARINE FRUIT FALLING (W. B.).—The cause of the fruit of your Pitmaston Orange Nectarine falling is due to imperfect formation of the seed or kernel, a process very often confounded with but distinct from stoning, which does not take place until a later period, when the fruit remains stationary almost for weeks, and when the stoning is completed the fruit swells rapidly. It is very similar when the seed or kernel is being formed; the fruit remains stationary for about a week, and either then assumes a sickly hue, ultimately dropping, or swells rapidly up to about half size, when the stoning commences, and occupies from four to six weeks. Yours have failed at the earliest stage. We have invariably found it a consequence of imperfect ripening of the wood, the trees being very vigorous and apparently very healthful, and, as your gardener says, does not arise from a deficiency of water at the roots, but is mostly resultant of the foliage being overcrowded. The foliage if we mistake not will be very fine. The shoots must be further apart than were the foliage smaller, so that the sun and air may have free access to the leaves. It is a common error to lay in too much wood without regard to crowding or discriminating between the requirements of medium-sized and large leaves. Keep the shoots thin, let the sun and air have access to them, thereby securing the thorough ripening of the wood, and your tree will return to its fruitfulness as before.

ZONAL PELARGONIUMS WITH DIVIDED TRUNKS (N. C.).—It is not an unusual occurrence, usually arising from too rich soil and wet. Turn the plants out of their pots, remove at least a third of the soil, and repot in turfy loam with a fourth of thoroughly decayed hotbed manure and a free admixture of sand—about a sixth. Shade for a few days until the potting is recovered from, stopping the shoots when the roots are working freely in

the fresh compost, and shift the plants into pots a size larger when the roots reach the sides of the pot and before they become very closely matted, affording the plants a position near the glass in a light airy house.

TREATMENT OF "LA BELLE" CARNATION (Idem).—Report the plants but do not disroot them; merely loosen the sides of the ball and remove any loose soil from the sides and the surface. Pot in rather strong turfy loam, employing a pot 2 inches larger in diameter than before, potting firmly and draining well. Do not cut back the shoots but train them to a trellis, which may be formed of small stakes painted green in the form of a column, to which the shoots can be trained with care. The plants may be plunged in ashes outdoors in an open but sheltered situation, removing them to the greenhouse in late September. It is one of the most continuous-flowering of Carnations. Young plants may be stopped, but it must not be practised after this period if the plants are to bloom well the ensuing winter.

CUCUMBERS IN MARCH AND APRIL (Primrose).—You may grow Cucumbers in pots so as to have fruit in your stove at the time named, it being kept at a temperature of 70° to 65° at night, 75° by day, rising to 85° with sun and air, which, however, is too hot for stove plants generally in January and February, the seed of the Cucumbers being sown early in January. The vinery is not suitable, but we do not see why you could not have Cucumbers early in April if you were to take care of the litter during the early winter and supplement it with tree leaves. Sow in January, the first week, and make up a bed so as to receive the plants early in February.

RED PAINT FOR GREENHOUSES (Subscriber, G.).—Your wholesale condemnation of "red oxide of iron" paint is unwarrantable, and your deductions merely imaginative. It does not at all signify what the colour of the paint is that is used upon the outside woodwork, for the obvious reason that the solar rays do not pass through the woodwork but the glass, and, though the rays are refracted and reflected, it is only those that pass through the glass that can have any effect upon the plants in the interior of the structure. All paint comes off where the wood is damp. We agree with you in red being an unsuitable colour for greenhouses, but instead of the orthodox white we prefer light stone colour for the external woodwork, using white for the interior, with drab for the stages.

NAME OF PLANT AND PROPAGATION (A Constant Reader).—The plant known in your locality as "japonica" is, from the description given, Cydonia japonica, or Japan Pear, one of our handsomest spring-flowering shrubs. It may be propagated by layers made in autumn and allowed to remain on for twelve months before being detached; also by suckers, cuttings of the roots cut into lengths of 3 to 6 inches and inserted about 2 inches deep in light soil in a warm situation, and occasionally by seeds. Layers are the best, cutting about half way through just below a joint, and burying the notched part 2 or 3 inches deep in the soil and there secured with a peg.

GREEN RANUNCULUS (Rev. S. A. Brennan).—Green centres in the Turban Ranunculus have been very prevalent this season. We saw a bed in a friend's garden in which the whole of the flowers bloomed with green centres. We do not know what has caused this unusual phenomenon, but it is very frequent this season.

WATERING MELONS (A Subscriber).—While the fruit is swelling you can hardly give too much water, a copious supply being poured upon the soil at least once a day in hot sunny weather. When the fruit is full grown and the process of ripening begins it will lose its green hue, and this will be an indication that the time to cease watering has arrived. Attend closely to this, or the fruit will split and its appearance be spoilt.

GRUB IN APPLE TREE (H. P.).—It is the larva of the *Zeuzera aesculi*, Wood Leopard Moth.

CORDON APPLE TREE UNFRUITFUL (G. C.).—When the spring shoots are stout and strong prune or pinch them off to about four leaves. Neither prune nor pinch the midsummer shoots but let them grow, and early in September give each shoot a twist at about 4 inches from its base, taking care not to break it, and turning the tip downward. This gives a check to the growth, diverts much but not all of the sap into the buds between the base and the "twist," causing them to become plump and prominent without actually starting into growth. Enough of the sap passes through the bruised tissue of the "twist" to keep the turned-down ends alive, and they are not cut off till the leaf falls, which will happen somewhat early, and by the end of the month you must open a trench about a yard from the stem and all round it, going quite under it to make sure that the whole of the roots are severed, then replace the soil. This treatment will promote the speedy formation of blossom buds.

NAMES OF PLANTS (J. E. S.).—*Rosa alpina*. (A. B. C.).—3, *Selaginella Martensii*; 4, *S. Braunii*; 5, *S. Kraussiana*; 6, *S. cuspidata*. (M. H. M.).—*Chrysanthemum coronarium*. (Jean).—1, *Valeriana pyrenaica*; 2, *Stellaria Holostea*; 3, *Scilla patens*. (J. C.).—*Alaternia* sp.; 2, *Berberis Darwinii*; 3, *Coronilla Emerus*; 4, *Kerria japonica*; 5, *Candollea cuneiformis*. (F. Q.).—A double-flowered variety of *Saxifraga granulata*. (Holton).—1, *Prunus Padus*; 2, *Stapelia pinnata*. (J. S.).—*Petty Whin* (*Genista anglica*) and *Marsh Marigold* (*Caltha palustris*). (A. M.).—*Franciscea latifolia*. (A Subscriber).—We cannot name plants from leaves only, nor so many specimens. We have requested subscribers not to send more than six.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

THE REARING OF CALVES—(Continued).

WE must now refer to the second part of our subject, that of rearing either heifer or bull calves with the object of being fed and fattened for slaughter in the future as beef upon the principle of early maturity. Even under this heading we have two matters to consider—viz., whether the calves will in the future be required for grazing in the open pastures, or required to be box or stall fed and kept under cover entirely, as the latter practice is often adopted with great success, particularly upon farms composed chiefly of arable land. In our former notes we made

comments upon rearing the calves up to four months old; we now propose to refer chiefly to their treatment after that time and until they become twelve months old, at which time they leave their calfhood and are then commonly called yearlings. When it is intended that the calves should be grazed in the open pastures it must be upon land bearing grass of sufficient quality to fatten them, with only a slight amount of assistance by the use of oilcake or other feeding materials. We, however, recommend that the calves should under any circumstances be housed or yarded at night, as this will be the time and opportunity to give them their artificial food both at night and morning, and the surest means of preventing the disorders and complaints to which they are liable when left to graze in the pastures night and day continuously. The most serious complaint, however, to which they are liable, and particularly the heifer calves, is the "black leg" or "quarter ill." This disorder is known by different names in different localities, and is one of the most fatal maladies to which young cattle are subject. It is very rare that any cure is effected, because under ordinary circumstances it cannot be discerned soon enough; therefore we must look to precautionary and preventive management. In our own experience we formerly lost nearly every year some of our best calves when they were left in the meadows at night, but after adopting the before-named plan of housing at night we have never lost an animal from that complaint. With regard to the bull calves to be fed and fattened as steers in the future, they should be castrated at about a month or five weeks old if healthy and strong, and the operation should always be performed by a practised veterinary and whilst they are in house, and they certainly ought not to be allowed to go into the pastures until they are entirely recovered from its effects.

In referring to the matter of feeding calves under cover to be made out as beef in the future, we advise that they should be accommodated in boxes about 12 feet by 12 feet, and we have on various occasions fitted-out a number of capital boxes in old barns, which we have found generally of sufficient width to make a double range of boxes with feeding path in the middle. This affords excellent boxes made with fir poles about 18 inches apart, the feeding path being raised, and the floors of the boxes sunk about 18 inches and filled with earth about 12 inches in depth; the manure then may be allowed to accumulate with advantage. As soon as the calves are able to do without milk or its liquid substitutes, and are able to live upon green fodder, they are removed from the calf-pens and placed two or three together in the boxes and littered with straw as cleanliness requires, and according to the time of the year they will be fed upon green fodder, such as rye first, followed by trifolium, tares or clover, and finally with roots. Care must be taken to have within reach a bundle of clean straw and a lump of rock salt, these articles being the great correctives of their health whilst feeding on succulent green fodder. Some parties, however, adopt the plan of cutting into chaff a mixture of straw and green fodder, to which plan we cannot object. It is, however, more expensive and not so simple in management. Chaff offers a good opportunity to mix with and give the cake or meal, as in the absence of the roots such as carrots, mangolds, &c., with which we usually mix it, it is found a good substitute. As the calves advance in age the cake and meal are increased. Whilst they are living on green fodder they get it *ad libitum*, and receive at first about 1 lb. of cake and 1 lb. of meal per day. As the season advances and they begin to receive roots the quantity of cake and meal may be doubled; but at no time after they once take to their green fodder or roots are they allowed hay, as this would be found to absorb the profit and injure the health of the calves also, for since we have adopted the method of straw feeding we have found great uniformity in the health of the animals. The quantity of roots given after the calves commence eating should range between 20 lbs. per day to 40 lbs. per day each until they are about twelve months old, the roots being cut with Gardener's cutter and the meal always mixed with the cut roots. In this way each kind of food is more beneficial to the calves, and when only fed twice a day they have plenty of time to lie down and digest their food, and in the interim will eat a good portion of clean sweet straw, and then return to the feeding troughs with a good appetite. Upon this system of management the calves at the time they are twelve months old will be found, not only in the most healthy state, but will also exhibit first-rate condition both as regards quality of meat and weight for age, having been fed in the most economical manner, and will have retained their calves' flesh, so advantageous as a foundation for successful feeding in the future. We will here quit the subject because, having remarked upon the method of feeding the calves, we propose on a future occasion to refer to the best system of feeding the animals fit for the butcher at the earliest period.

We have now to refer to the remaining part of the subject—viz., the rearing of calves with the object of being sold and killed for veal. The keeping a dairy for suckling used to prevail to a much greater extent than at present in consequence of the greatly extended demand for milk in the metropolis and other large towns. When the suckling of calves used to be carried out as a system,

called a suckling dairy, it used to be observed that veal at sixpence per pound paid as well as the butter at a shilling per pound; and as the value of butter and veal bears about the like proportion there is no reason why a suckling dairy should not pay well at present, particularly in some districts which are remote from railway stations, and in cases where cheese or butter making may be inconvenient. The chief difficulty is sometimes found in obtaining a supply of calves sufficient to meet the requirements of a dairy of considerable extent. The supply would, however, be readily obtained in a cheese-making district, as the calves are usually disposed of at a few days old, at which age they are generally bought up for filling vacancies in the suckling dairy and continuing the succession, so that all the milk from the cows may be converted into veal. When the calves first arrive they require very careful attention, because we have often taken them after being starved for twenty-four hours, in which case we always put them to a cow which has nearly been sucked dry by another calf. For the first week we always put two calves to one cow, and gradually advance them to maturity as veal; but in advancing them care must be taken that they receive no check in their condition either from shortness of milk or other assistance, for it is desirable in some stages of their growth that they should receive artificial food given as balls composed of mixed oilcake and oatmeal. In selecting calves for making veal the breed of stock is very important. Either Shorthorns, Herefords, Devons, or Sussex answer very well; but care should be taken that no cross-bred stock having Channel Island blood in it should be purchased, because this breed are not only poor doers and slow growers, but when killed often die of a yellow colour, which is entirely objectionable to the butcher. It is at the same time important that the cows for a suckling dairy should consist of cows of the sorts above named, the Shorthorn being the best of all, not only because they give the most milk, but because their milk is of a comparatively poor quality, which is essential in making a good veal calf. It is an admitted fact that quantity is of more consequence than quality of milk in suckling calves for the butcher. We have often noticed that a good butter-making cow makes comparatively but a poor calf, which often proves of a yellow colour when killed. As a matter of profit a suckling dairy pays quite equal to the other methods of turning milk into money, and, when properly attended to by careful observation of the health of the calves and furnishing them with good and healthy pens, similar to those which we have described. For veal calves the pens, however, should be as dark as they can be made consistent with a sufficient ventilation and pure air; the calves should also be tied separately and suckled at regular intervals, they will then in the interim lie quietly and take more sleep, which is so essential in all cases of economical management of a suckling dairy. Good Shorthorn cows ought to fatten five or six calves during their milking period, probably worth £5 each, particularly if the calves get the artificial food balls as recommended. We have no doubt that cows well fed will continue to give milk longer and give more of it whilst suckling calves than under any other system, for it must be admitted that the calves are the best milkers and never leave injurious deposits in the udder. A suckling dairy will, however, require constant and unremitting care, but it is attended with less trouble and expense compared with butter and cheese making.

WORK ON THE HOME FARM.

Horae Labour is still required on the fallows in preparation for Swedish turnips, or mangold and carrots if not already sown. Nothing, however, is more injurious to the cultivation for Swedes if the land is clean than too much ploughing, because it makes the land too hollow, in which case the grub and wireworm often do serious injury to the young plants, besides which, in the event of settled dry weather setting in, the ground would soon be too dry for the seed to vegetate. We have experimented many years ago upon this point. The horse-hoeing of beans and peas, also of early potatoes, should be done, the hand-hoeing following, so that the weeds may be destroyed in their infancy. Green fodder crops are now available for horses, cattle, and pigs. On the home farm, whilst the sheep are on the pastures, not only the green fodder crops may be cut for feeding but the clover crop also, because an acre of clover is far more valuable cut for feeding cattle under cover than by feeding it off with sheep; besides, the wheat crop succeeds better after clover cut twice than it does when the clover is fed off by sheep during the summer. This matter is explained by the fact that under the scythe the roots of clover increase immensely, even if the clover is cut three times or cut once and left for seed; whereas sheep in feeding clover injure the growth and succession of grass, and thereby check the increase of the root. To return, however, to the feeding of stock. We use the trifolium for feeding the horses, the fatting bullocks, the yearling heifers and steers, also the calves from eight weeks old and upwards, the breeding sows and store pigs of all ages. The fatting bullocks may have in addition about 20 lbs. of cut mangold each, mixed with 4 lbs. of cake meal; the yearlings about 10 lbs. of mangold with 2 lbs. of cake meal, and this is very cheap feeding considering the progress the animals will make under this mode of management. At the same time wherever

the consumption of green fodder is going on the value of the manure will be very great when the cattle are fed under cover, either in boxes or in sheds, especially if the floors of the sheds are well covered with earth before the cattle enter them and afterwards properly littered. Rye if gone too far for green fodder may be cut and cleared for the succeeding crop, and tied up into sheaves and reserved for straw; or it may be cut up and after a few days carted to rick for the purpose of using as rye hay, for which it is very valuable in the winter months, and much better than hay, the produce of pasture land, for the feeding of fattening cattle in conjunction with roots, meal, &c.

The question now arises as to the best crop to sow in succession after the rye, trifolium, vetches, &c., are cleared. This must in a great measure be decided on by the probable requirements of the cattle next winter and autumn. If mangold is wanted it comes well after rye or trifolium sown any time in the May month. If a provision is required for dairy cows, &c., of green fodder in the autumn trifolium of the early sort dragged in now on the rye stubble will be fit for cutting at the end of twelve weeks. After trifolium is cleared vetches and oats may be sown as a mixed crop for horse fodder. This also will come fit for use at a time when the clovers are past the best. Vetches and tall rape may also be sown after trifolium, it being the best of food for milch cows in the autumn. Cabbages may also be planted at one ploughing after trifolium, manure from the farmyard being laid out and raked into every third furrow, the cabbage plants being set on the furrow over the dung, or guano may be strewn in every third furrow instead of dung.

Hand Labour.—Men may now be partly employed on the home farm where there are many fences with banks and ditches, for in such cases much strong grass, wild parsley, hog weed, &c., will be found, which being cut now from the banks, ditches, and borders will furnish capital food for young cattle, pigs, &c.; in fact there will be two cuttings in the summer if cut at the right time. This plan not only furnishes food for stock, but it is in fact trimming the hedges and turning to good account the hazel boughs, brambles, &c., which if left until the autumn before being cut become objectionable by seeding the adjoining land with seeds of the coarse grasses and weeds. Women will still be required in the fields weeding the Lent corn, also in couching, and we have oftentimes found some of the strongest of them earn good wages at hoeing peas, beans, &c.; also the first flat-hoeing of mangolds is work which they can often do with advantage, particularly in some districts where men for field work are scarce.

THE POULTRY CLUB.

The first meeting of the regularly constituted Committee of the Poultry Club was held on Tuesday the 14th at the Charing Cross Hotel. There were present the Hon. and Rev. F. G. Dutton (Chairman), the Hon. and Rev. A. Baillie-Hamilton, T. C. Burnell, A. Darby, and O. E. Cresswell (Hon. Secretary). The Honorary Secretary presented the list of Officers and Committee as elected by the members of the Club, and it was resolved that his analysis of the votes be taken as correct. The Committee so elected are as follows:—President, the Hon. and Rev. F. G. Dutton; Vice-President, the Hon. and Rev. A. Baillie-Hamilton; Treasurers, H. Radclyffe Dugmore and Horace Lingwood; Hon. Sec., O. E. Cresswell; Committee, R. A. Boissier, T. C. Burnell, A. Darby, J. K. Fowler, S. Matthew, E. Pritchard, Rev. W. Serjeantson, and L. Wright. A communication was read from Mr. Lewis Wright concerning his election to the Committee. While wishing all success to the Club, and fully appreciating the wishes of the large number of members who voted for him, he thinks it best for the Club to be independent of his personal service. Mr. R. C. Horsfall will therefore be on the Committee. Mr. Cresswell then, as Treasurer *ad interim*, stated that the subscriptions already paid to the Club amounted to £84 18s., and that the amount expended was very trifling, there having been no advertisement of the Club, as is usual on the formation of such societies.

It was resolved that the Treasurers be requested to open an account in their joint names with the London and County Bank. It was further resolved that the list of the Club with officers and Committee should be printed and published, and that the rules of the Club should be printed. Some rules for the good management of poultry shows were discussed and agreed upon, and it was resolved that committees of shows be invited to hold their shows under the patronage of the Poultry Club. Further resolutions were passed concerning communications between the Hon. Secretary and the Royal Agricultural Society. Several new members and associate members were elected, and the next Committee meeting was fixed for Monday, June 10th, to be held at the Clarendon Hotel, Oxford, on the first day of the Bath and West of England Society's Show there.—C.

PIGEONS—HINTS TO YOUNG AMATEURS.—No. 3.

I STATED at the end of my last paper that I would next speak of the best food for Tumblers, also of their indoor management and most suitable home. Flying Tumblers are wonderfully

healthy birds. Whoever saw one ill? Catch them when you will they are always plump in breast and bright in eye. They are the happy medium in size between that smallness which brings delicacy and that lumbering bigness which seems to knock itself to pieces from its oversize. I was once talking to an old Peninsular and Waterloo veteran, and asked him whether he kept his health during war time. He was a neat-made, medium-sized man, probably 5 feet 8 or so, with capital shoulders for a knapsack, and he was also in the line, the common marching, or, as they were jocularly called, "mud regiments." He told me that he and the men in his regiment were well enough, and few of them ever in hospital; but added, "it was those big guardsmen that knocked up; they were soon done for and in hospital, and more of them fell out on the march than any other regiments." This was told to me by the old linesman as he was nailing up fruit trees, for he was, before he enlisted and after his discharge on a pension, a jobbing gardener. The medium size is the best for health in man, and beast, and bird. The heart has not so much work, and the limbs are not so lengthy and straggling, while the size is sufficient for a healthy development and for robustness, not being over-small and delicate. So of our little plump-bodied middle-sized Flying Tumbler; not a big hulking roopy Pouter, or a tiny bit of delicacy called a Short-faced Tumbler. I know no other Pigeons so healthy, except perhaps the Dragoon, so therefore hints as to diseases and cures are not needed. Supply your Flying Tumblers with a pan, a shallow one, of water for a bath; let it be where the morning sun shines on it, and Mr. and Mrs. Tumbler and their very numerous progeny, excellent to eat if you cannot sell them, will bathe to their delight. Then there is another kind of bath—the air bath, which they are sure to take, and which puts every feather in its place, and braces while it exercises the little wings.

But what as to food? In this matter you need not go to great expense. Having their liberty Flying Tumblers are sure to pick up much—many a crumb at the back door, and in harvest time mine used to delight to get on the roads where the harvest waggons passed, and very little food they then needed. Flying Tumblers will do well enough on a mixture of peas, Indian corn, and barley. I never used a hopper for long, simply because of the mice; they would get in and spoil the food, besides eating a quantity, and, worse still, make the whole place smell of mice.

Next as to home for Tumblers. Put aside all thought of a wooden house on a pole—those cruel things; scorching in summer, starving in winter, in which no Pigeons prosper or rear sufficient young ones to pay for one-half their food. Then those triangular wooden boxes on a south wall are rather better, but poor things still, and you cannot have any control over your birds. A small place inside a building with a hole or holes in the wall for ingress and egress—such a place, fitted up with neat places a foot wide and deep, does admirably. If you can give much room do, the more the better, the fewer eggs broken, and the more young reared. A shut-down lath or wire door at night for safety from the cats, for Miss Puss and Mr. Tom are very partial to young Pigeons. Some odd corner of a building may easily be fitted up for a few Tumblers. If on the ground floor it will be easier to clean, and make a place to stroll in during a shower. I always notice that fanciers who have their birds on the ground floor pay them most visits. A ladder to climb has a tendency to make fanciers less attentive than they should be; though not always, for I know London fanciers who have built wooden huts for their birds on the very roofs of their houses, and get twice a-day there with their Pigeons, watching them with a binocular, so as to see and distinguish the tumbling of some new purchase. Wonderful home love and home knowledge must these little birds have who come straight down to their little homes, knowing the place exactly amidst the miles of roofs stretching beneath them. There they are up mere specks in the air—then down, down, down with no mistake to their own little wooden hut on the high roof—

"Type of the wise, who soar but never roam,
True to the kindred points of heaven and home."

A wired-off corner of an outhouse does nicely, say 6 feet square. Being wired, or partly so, you can have a nice view of the birds without going inside. See them on their nests, notice who are nesting, what birds are sitting, which are absent, &c. Those who cannot easily get to see or watch their pets do not have nearly so much enjoyment of them as those who are frequently with or near them; and although Tumblers will live anywhere, they do best where best care is taken of them. A plan of a Tumbler house, a very good one, was given in vol. xviii. of this Journal, page 818, and as I am sure there are many beginners, many in our infant fancier classes, who were not readers of our Journal so far back as April, 1870, I will ask the Editors to be good enough to reproduce the sketches and description of the pen for Flying Tumblers to which I allude.—WILTSHIRE RECTOR.

It often happens that there are about one's premises various nooks and corners (in an outhouse, loft, &c.) which, with a little judicious fitting-up, can be rendered available for this purpose; but should the beginner have no such place at his disposal and a pen has to be constructed, the following is the plan I would recommend as best adapted to the purpose. At the same time, as

regards the internal arrangements of any suitable place that he may have upon his premises, I should advise the adoption, as far as possible, of the principles stated beneath. Perhaps my ideas will be best conveyed by the following sketches.

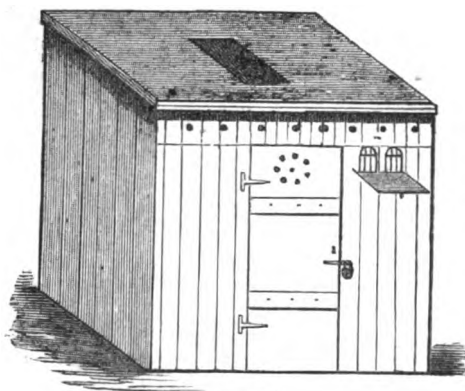


Fig. 60.

The above figure represents the external appearance of the pen I recommend. It should, if possible, be placed against a wall facing any point between south and west, for the obvious reasons of being sheltered from cold winds and to have the benefit of the sunshine. The dimensions are 6 feet square, with the exception of the back, which is 7 feet high. It should have a boarded floor, either raised a little from the ground or the foundation dug out and filled with dry ashes. There should be a pane of glass in the roof, and two holes cut in front and fitted with bolting wires, to be closed up with a ledge working on hinges, to ensure protection from cats. Provision, of course, should be made to ensure the necessary ventilation, and this can be done by boring holes as represented in the door, and at other places near the roof. The latter can either be tarred or covered with roofing felt to keep out the wet.

The internal arrangements are represented in the following sketch.

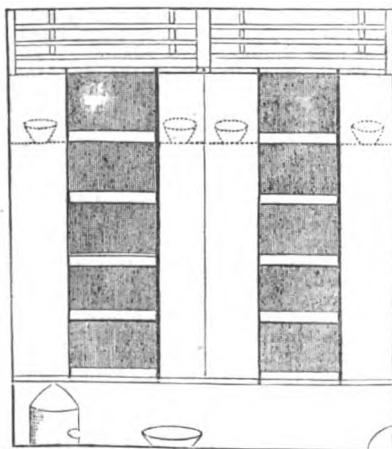


Fig. 61.

Five shelves, each a foot wide, should be placed against the back of the pen. They should be 1 foot apart, and, with the exception of the space between the floor and the lowest shelf, should be divided in the centre by a partition. In front of these shelves should be nailed four boards, also a foot wide and 5 feet long, one at each side of the pen and two down the centre, all reaching from the top to the bottom shelf. This will give breeding places for ten pairs of birds; these will be 3 feet long by 1 foot wide and 1 foot high, with a blind at each end behind which to put the nest pans. The two spaces between the top shelf and the roof should be fitted with lath fronts made to hang by hinges from the roof, and these will be found most useful either as pairing cages or to pen birds in. The floor of the pen should be left entirely free with the exception of the water bottle, the mortar pan, and the salt, all of which should be placed under the bottom shelf to keep them clean. Each side of the pen should be fitted with perches made in the well-known triangle shape. A little strip about an inch wide should, however, be nailed across the angle to prevent

the sharp edge from injuring the feet of the birds, and to enable them to rest comfortably. The perches should be from 3 to 4 inches wide, and placed about a foot apart. They can easily be fixed by nailing them to a strip of wood, and so screwed to the side of the pen.

I have omitted to state that a door made of stout laths should be fixed to the pen in such a manner that the outer door may shut over it. This can easily be done by nailing a lath on each side of the door inside the pen; one to hang it on, and the other to fasten it to. The inner door should be made to open outwards the same side as the outer door, by placing the perpendicular laths about an inch nearer the centre of the doorway than the width of the outer door. This inner lattice door is to give light, air, and sunshine to the birds; the outer door, of course, to lock up safely at night, and to keep the birds warm and comfortable in cold and wet weather.

A pen on the above scale is calculated to accommodate from thirty to forty Pigeons, and the cost of its erection will be about £2, which again may be diminished to somewhere about half if the fancier is at all handy with the hammer and saw, and able to erect it himself. Of course it is not intended that the pen should of necessity be made to the dimensions I have given. Everything, as I said before, depends upon the intentions of the fancier as regards the number of birds he intends keeping, &c.; but whatever may be the dimensions of the pen, the above principle should be adhered to as best calculated for the kind of birds of which this article treats.

It may be as well to state here that the inside of the pen should be well limewashed once or twice a year, and the floor and breeding places kept well sprinkled with sand, which will render it healthier for the birds and easier to clean out. I would recommend that the latter process should be performed daily. It can be done in the following manner in five minutes, and the little extra trouble will be amply repaid by the better health and breeding of the birds, and the pleasure of seeing them always clean. Scrape out the dung from the shelves on to the floor, and then, having scraped all into a heap, pass it through a fine riddle, taking the excrement away and using the sand again.

THE SELECTION OF A BREED IN RABBITS.

THERE are about half a score of Rabbit varieties all differing from one another in many important respects. When a person wishes to commence breeding he is met with this array of varieties, and does not know what kind to begin with. He cannot do better than commence with a pair of common hutch Rabbits costing about 2s. or 2s. 6d., and after he has learnt a few lessons in breeding and rearing, at the expense probably of the constitutions of the animals selected for experiment, he may then try with some more valuable specimens, choosing those that may be specially suited to his Rabbit house and hutches. Some varieties are very hardy and others equally delicate. A short list of the characteristics of the various kinds with their requirements and nature will be of great assistance in the selection. It is very necessary that there should be plenty of room for the new comers, so that they may not be crowded at all. Crowding is very unhealthy, and very often the cause of many diseases. Therefore it is best to get the hutches properly arranged and then to bring the Rabbits to them. If you select Lops you must have heat. Look carefully around you and see if the provision of heat is likely to cause very much trouble, and if it is the scheme had better be abandoned definitely, as it does not pay to keep them without heat. If there are facilities for heat it will be very interesting to keep Lops, because they vary more than any other variety, and are consequently susceptible of a great many experiments. Still those who keep them must not be surprised at failure, nor must they be disappointed, because Lops are most obstinate animals, and they often refuse to breed.

When the means at hand for providing comfort are very limited it is better to keep a hardy variety that does not want many comforts. A Silver-Grey section will answer pretty well, but even this breed should be kept a little warm if the fur is wanted to look very pretty. They are very handsome and useful, and the strongest and hardiest variety that is known. They may be bought cheaply if slightly mismarked, and good specimens may be bred from these. They are good breeders, and as there is a good demand for the young they may be sold at a remunerative price. They are affectionate and gentle, and make good pets for children. Angora Rabbits are much more delicate. They have long white wool, which is troublesome when moulting, as it gets on clothes and is difficult to shake off. The breed requires a little heat, as they are delicate and require careful attention. They are very docile and breed well. The Himalayan is very pretty and is hardy. It breeds very well, but so very uniformly that it is quite tedious. Some of the young have black or very dark points and others have very light points. The annoyance is, that sometimes the points lighten and darken without any apparent cause. If they are kept for showing it is necessary to keep the stock always well up, as some will fall off and others improve without any apparent reason. Many persons like the

breed, and some go into raptures over it; but the uniformity of breeding, and the way of running-off for show trim has disgusted many fanciers, and there can be no mistake that the breed has already reached its zenith of popularity, and is perhaps on the descending scale. They do not require very much attention. Silver-Creams demand attention, and the many means of improving the breed often suggest much enterprise and pleasure. Hence the variety which was hardly known four years ago is now getting rapidly into favour, and is increasing in value. It often has a class at a show, and when competing in the variety class the first honours often fall to them, as the judges feel the necessity of recognising the trouble that has been bestowed on them to insure perfection. The variety is not so hardy as the Silver-Grey, but still is strong and easily kept. The very large breeds, such as the Patagonians and Belgian Hares, require large hutches but no extra accommodation, and they are very hardy. As they do not eat much more than the small ones they pay very well. They do not want any warmth or extra attention, and may be liked on that account. They are neither of them very prolific and do not pay very well for breeding. They do best for fattening, as mentioned in a previous paper.

The Dutch breed is worthy of notice. They do not want any heat, but a little uniformity will be likely to improve them. They are so very small that they do not pay for eating purposes, but as they are valued by the fancy they pay well for that. They do not require either so large or high hutches as the other varieties, and consequently are recommended for Rabbit houses of very small dimensions. They are wonderfully prolific, and the young vary a good deal; this is an advantage to speculating fanciers. The other varieties, Polish and Siberian, are neither of them much known. They are both pretty and may be liked, but neither are recommended. The first are very weak and delicate and give much trouble which is not repaid by any corresponding value, and the latter are under-rated and always considered a mongrel breed. Both require a little warmth.—G.T.A.

LOVE BIRDS

ARE natives principally of South America. The species includes many varieties, though but three are commonly offered for sale. Swindern's Love Bird is the most beautiful in plumage, and is the smallest member of the family. It is also the most delicate and difficult to be obtained. In colour the head and upper part of the body is of light green, throat black, breast greenish yellow, tail coverts deep blue; the central feathers of the tail are black, the others crimson, black, and green; bill black, legs and feet dark grey. A variety with lavender-coloured heads, from New Guinea, is sometimes found at the bird stores. These have proved to be quite hardy and easily acclimated. A green variety, natives of Java, are delicate and scarce. A second green variety differing from the first by the orange wing coverts, come to us from the West Indies. These are quite hardy. A pair kept in a conservatory during winter and an outdoor aviary through the summer have proved very attractive pets, readily responding to the call of those to whom they are accustomed, perching upon the shoulder or hand to receive some proffered tit-bit. The pair rarely are separated; where one goes the other follows. The golden-tailed Love Bird comes from Brazil. It is also quite rare. Gedney mentions a pair obtained by him at Malacca having blue tails.

The Abyssinian Love Bird is the variety commonly found in aviaries. It is hardy, feeding readily in confinement, and if given the liberty of a room shows the activity and amiability which renders the family attractive as pets. When caged they seem rather stupid, and confine the expressions of affection for each other, which have given them their name, to dressing each other's plumage and nestling close together. Like other Paraquets, they show themselves to best advantage when they have partial liberty and when familiarised by notice and caresses.

Their nesting places are in the hollows of decayed logs. The eggs are usually five in number, round, and white. Both parents share the duties of incubation and raising the young, feeding them after the manner of Pigeons, by taking the beak of the young into their own and disgorging food into it. It is best not to attempt to raise but a single brood a-year, although the hen will frequently desire to go to nest in the late summer; the care coming during the trying season of moult will injure the parents, and the young will be weakly and not likely to survive.

The entire length of the Abyssinian Love Bird rarely exceeds 6 inches; the body colour is light green with a tinge of dark blue upon the long feathers. The face of the male is of brilliant red, while in the female the shade is softer. The base of the tail is of rich turquoise; the tail feathers are of brilliant red, barred near the ends with black and tipped with green. The rich colouring and marking of the tail are only seen during the flight, the coverts hiding them when the bird is at rest.

The sex of the young of this variety cannot be determined until after the first moult. The first plumage is of dull green, and the face markings indistinct.

Gedney says, "There never was probably a prettier story told than that which assures us of the excessive grief of the Love Bird

for its lost mate, but from experience and experiment I am fully convinced that no Love Bird ever yet died of broken heart. So long as a supply of food is kept up they will suffer neither loss of appetite nor health from the death of a mate. A very amusing game goes on every evening amongst my Love Birds. They all range themselves in a row like a regiment of soldiers and crowd closely together, but the birds all object to outside places, and they accordingly fly off when forced into that position, and going to the rear they cling to the branch, where, thrusting the head between the legs of a bird in the centre of the company, the intruder lifts it bodily from its place. This continues until darkness intervenes, when the 'pivot men' resign themselves, but they frequently 'right about' to keep both sides warm from the heat of their companions." Gedney advocates white millet seed as the staple food, also soaked bread occasionally, to keep the bird in condition.—(*American Fanciers' Journal*.)

VARIETIES.

It is seldom that one can report so favourably of the agricultural look-out in North Wales as at present, and whilst farmers have the reputation of being a set of grumblers it is gratifying to write that just now there appears to be nothing to grumble about. The spring on the whole has been all that could be desired; the cereals were sown with the land in excellent order and in good time, whilst the potatoes were got in equally satisfactorily, and now mangold planting is proceeding under favourable auspices. Barley and oats are looking well; wheat has done well throughout, and looks healthy everywhere, except in some damp clayey soils. As for the cattle they have had an exceptionally good time, and the genial spring has prevented the haystacks from dwindling away into shadows, whilst it has caused the pastures to give a good bite early in the year.—(*Mark Lane Express*.)

MR. W. T. CARRINGTON, in a paper on the improvement of grass land read at one of the meetings of the Midland Farmers' Club, observed that the plan he adopted in improving inferior pastures has been to apply early in the spring a top-dressing of 4 cwt. of mineral superphosphate, 26 per cent. soluble, costing 4s. 3d. per cwt., and 1½ cwt. nitrate of soda, at a total cost of under £2 per acre. The abundant produce of grass resulting from this dressing he has consumed with cattle or sheep eating cotton cake, malt dust, or other food of high manure value, moving the troughs and feeding the animals on those parts of the fields most in need of manure. The top-dressing has in some cases been repeated, or 2 cwt. per acre of Peruvian guano substituted on those fields or portions of fields which evidently most needed help; and the system of cake-feeding upon the land continued whenever, from the low price of the extra food or the wants of the stock, it has been profitable to use it. By the judicious addition of extra foods stock will do well on coarse herbage, and may be made to graze it bare without injury to their well-doing, and the manure left by the stock is vastly superior to that of animals living on ordinary grass or fodder, producing grass of much better quality than that grown from ordinary dung.

THE following, says a correspondent in the *Irish Farmers' Gazette*, is a perfectly successful application for preserving iron and steel from rust:—Take one part finely powdered resin, three parts unrendered lard; mix together on a slab or in a mortar. This preparation should be rubbed over the iron or steel article quite thinly, but completely. It hardens on the surface into a coating easily removable by warmth, though not readily yielding to the touch. It is quite impervious to the air, and consequently preserves the object from rust for any length of time, even if placed or left in a damp situation. It is essential that the lard should be taken from the pig when killed, and not rendered, as rendered lard generally contains salt. The preparation will keep for any period, and a small quantity will sufficiently cover a large surface. He considers it a most valuable recipe, and can confidently assert from long experience that anyone using it will not be disappointed with the result.

MR. JAMES HOWARD has stated in the *Times* that seed corn can be effectually "pickled" without risk to rooks and other birds, and with saving to the farmer, by the following means:—For a sack of corn (four bushels) take half a pint of gas tar, 1 lb. of vitriol, and one gallon of hot water; pour the liquid, well mixed, over the seed with a common watering pot twelve hours before sowing. If thus treated rooks will not touch seed corn of any kind, for they, as well as other birds, appear to have a great dislike of the tar. The expense of crow-keepers is also by this plan avoided.

MR. MECHI, writing from Tiptree Hall, Essex, says, "We are certainly favoured with an exceptionally promising season for almost or quite every crop, fruit included. The sunshine of March and April, both before and after sufficient moisture, so warmed the soil and the air in contact with it that frosts lost their power, and we are at present free from those wet and severe frosts which, in early May last year, ruined our fruits and injured and delayed the general crops. Our wheats are so luxuriant that although

only sown with $4\frac{1}{2}$ pecks per acre, they may soon require flagging, and, no doubt, there will be many laid crops this year, especially where thickly sown. Barley and oats have come up quickly and fully. Peas look admirably, and have been already twice horse-hoed. Mangolds are up. I never saw clover more luxuriant, and our tares are already fit for an early cutting. Surely if the weather continues so favourable harvest is likely to be early. Land owners and land agents will now cease to be melancholy, and let us hope and believe that trade generally will also revive—if we have peace. When I look at the produce of this farm I feel what a vast gap might be profitably filled up in home-food production."—(*Farmers' Gazette*.)

THE following, says S. D. McLean in "American Bee Journal," is a good method for dividing bees, and one that is both practical and easily performed by the experienced. After providing an extra hive with empty frames, or better, frames filled with comb, proceed to open the hive to be divided, and after subduing the bees with smoke or otherwise, lift out the brood combs with all adhering bees until two-thirds of all the brood is removed, placing the same in the new hive and being careful not to remove the queen. Fill all unoccupied space in both hives with comb frames. Locate the new hive some distance from the old. All the old bees will return to the parent hive, but enough young bees will remain to care for the brood. A fertile queen may be given the new colony after forty-eight hours, or about sunset on the second day, by quietly setting her on one of the brood combs. The bees being all young will accept her and the work is done. We introduced many queens to new colonies last season, as here given, without the loss of a single queen. The new colony will not work much for a time, but is generally equal if not superior to the parent stock in a few days.

A CORRESPONDENT who has been much troubled with wireworms records the following experience:—I tried many of the usual remedies but with small success. At last I adopted a plan that has invariably proved quite successful. In 1876 I thought it desirable to break up a field, fourteen acres in extent, of partly light bog and partly sandy and gravelly hills. It was covered with long old grass that cattle would not eat, and just the kind of place for the wireworm to work. At the time of sowing the oats I applied to nine acres a dressing of 8 cwt. common salt and 8 cwt. dissolved bones per English acre. The remainder of the field, which was the best of it, got no manure. The manured portion escaped the wireworm and produced a good crop considering the soil. The unmanured portion was so much cut up that it was not worth harvesting. Last year I had a field of very old lea, part bog and part gravel; to eleven acres of it I applied, in addition to the bone manure and salt above mentioned, 1 cwt. of nitrate of soda per statute acre. It produced a remarkably good crop; some of it too luxuriant, though the soil was very poor and thin. One acre remained unmanured, and the wireworm cut it up very much indeed. I am quite satisfied that the dressing has checked the wireworm in my case, and I see no reason why it should not do so in other cases as well. I have not tried salt alone, but probably on rich or well-manured land it would do equally well without the bone manure. But as the expense altogether is only about 2s. per acre, there will be ample return in corn and straw to repay that amount and leave a handsome profit besides.

THE crop reports received recently from all parts of the State of California are of the most favourable character. With few exceptions there is a prospect of an abundant harvest in all quarters. The southern portion of the State and the San Joaquin Valley, in which the crops failed last year, promise equally well with the northern valleys. In some localities there is complaint that the early-sown grain has grown so rank as to lodge, but this has not occurred to any material extent. The exceptions above referred to are the low bottoms in the Sacramento Valley which were drowned out by the February floods, and the Tule Islands in the delta of the Sacramento River.

WINTERING BEES—EKEING BAR-FRAME HIVES.

SOME weeks since Mr. Pettigrew wished to elicit information from different parts of the country relative to the wintering of bees during the past season. In this locality many hives have perished, but the mortality has in almost every instance which has come under my notice been occasioned by famine. The consumption of stores has been unusually great in consequence of the mildness of the winter, but where the bees have been properly supplied with food the hives are populous and likely to do well if we have a favourable season for honey gathering. Out of four stocks in my own garden two are very strong and the others fairly so. One of the strong colonies wintered in two Stewarton boxes and the other in a wooden Woodbury frame hive. Both of these were pretty well crowded with bees before the end of April, and I was able to start a nucleus box upon the 1st of May and a second upon the 18th, obtaining all the bees and brood from the Woodbury hive only. A queen is now at liberty (May 15th) in each of these young colonies.

Mr. Pettigrew is in error when he states, "The bar-frame hive is not made or meant for enlargement by eking or additions." I have for many years used Woodbury frame hives for storing, and have given additional room, below for breeding and above for honey storing. The ekes or nadirs employed are of the simplest construction—simple square frames or rims, 3 or 4 inches in depth and of the same size as the hive. The first of these ekes is furnished with ten moveable bars to which the bees attach their combs, so that it can at any time be removed with the greatest facility without interfering with the stock hive. If additional breeding room is still needed a simple square rim without bars is inserted below the first eke, and this process can be carried on *in extenso*. Stewarton boxes have been greatly improved by altering the width of the bars and varying the distances in the breeding compartments, and above all, for facility of manipulation, by the introduction of four frames in the centre of the stock boxes, which renders it easy to remove all the combs when necessary, enabling the bee-master to excise royal cells or strengthen weak colonies by the addition of ripe brood combs with the greatest facility.—J. E. BRISCOE, *Albrighton*.

OUR LETTER BOX.

HENS DISEASED (*J. S. Cairnie*).—They have ulcerated bowels. There is no cure. Have an entirely fresh stock.

CAGED THRUSH (*Turdus musculus*).—Set at liberty at this time of the year it would be able to provide for itself.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. $51^{\circ} 32' 40''$ N.; Long. $0^{\circ} 8' 0''$ W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain.
1878.	Barom. at 32° and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
May.		Dry.	Wet.			Max.	Min.	In sun.	On grass		
We. 15	Inches.	deg.	deg.	S.	deg.	deg.	deg.	deg.	In.		
Th. 16	29.473	55.4	52.9	S.	55.3	64.4	51.3	76.9	47.5	0.050	
Fri. 17	29.535	60.5	55.0	S.W.	54.9	64.7	49.0	77.0	46.3	0.063	
Sat. 18	29.538	61.8	58.7	S.W.	55.7	69.0	55.6	80.5	54.8	0.063	
Sun. 19	29.500	61.5	58.8	W.	56.9	74.9	57.0	86.1	54.2	0.066	
Mo. 20	29.588	57.6	50.8	S.W.	56.8	66.8	49.4	77.2	46.5	0.013	
Tu. 21	29.814	54.4	50.7	S.	56.3	58.8	49.0	69.3	47.2	0.313	
	29.936	50.5	45.6	W.S.W.	54.0	59.1	36.7	70.9	38.6	0.068	
Means	29.502	57.4	53.1		55.7	63.4	49.7	77.1	47.6	0.758	

REMARKS.

15th.—Wet morning; fine and bright after 9.30, very high wind between noon and 2 P.M.; wet night.
16th.—Fair day but dull, intervals of sunshine, shower at 4 P.M., high wind and showers in evening.
17th.—Fine sunny day; windy, dull, and heavy in evening.
18th.—Thunderstorm until A.M., very near from 5.42 to 6.30 A.M.; fine bright day with high wind.
19th.—Showery very windy day; fine evening.
20th.—Cloudy morning, slight rain, heavy showers during the day; cold in evening.
21st.—Fine bright morning, cooler, thunder and lightning at 2.40 P.M. and Temperature very similar to previous week, but very windy, and at times thundery. The night of 20th–21st very cold, almost frosty.—G. J. SYMONS.

COVENT GARDEN MARKET.—MAY 23.

ALL classes of fruits and vegetables are now plentiful with us, and with trade very quiet are realising very low prices.

FRUIT.

	s.	d.	s. d.		s.	d.	s. d.
Apples.....	½	sieve	2 6 to 6	Melons.....	each	6 0	12 0
Apricots.....	zen	1 0	3 0	Nectarines.....	dozen	0 2	0 0
Cherries.....	½	lb	1 6 3 0	Oranges.....	½	100 3 0	10 0
Chestnuts.....	bushel	10 0	20 0	Peaches.....	dozen	12 0	30 0
Currants.....	½	sieve	0 0 0 0	Pears, kitchen.....	dozen	0 0	0 0
Figs.....	dozen	12 0	0 0	Pears, dessert.....	dozen	0 0	0 0
Filberts.....	½	lb	0 9 1 0	Pine Apples.....	½	lb	1 6 6 0
Cobs.....	dozen	0 9 1 0	0 0	Plums.....	½	sieve	0 0 0 0
Gooseberries.....	quart	1 0	2 0	Raspberries.....	½	lb	0 0 0 0
Grapes, bothouse.....	½	lb	4 0 12 0	Strawberries.....	½	lb	2 0 12 0
Lemons.....	½	100 6 0	10 9	Walnuts.....	bushel	5 0	8 0

VEGETABLES.

	s.	d.	s. d.		s.	d.	s. d.
Artichokes.....	dozen	2 0	4 0	Leeks.....	bunch	0 2	0 4
Asparagus.....	bundle	2 0	6 0	Mushrooms.....	potl	1 6	2 0
Beans, Kidney forced.....	½	100 1 0	2 0	Mustard & Cress.....	pannet	0 3	0 4
Beet, Red.....	dozen	6 0	3 0	Onions.....	bushel	2 6	8 0
Broccoli.....	bundle	0 9	1 6	Pickling.....	quart	0 4	0 6
Brussels Sprouts.....	½	sieve	0 0 0 0	Parsley.....	doz. bunches	2 0	0 0
Cabbage.....	dozen	1 0	2 0	Peas.....	quart	2 0	3 6
Carrots, new.....	bunch	1 6	2 0	Potatoes, frame.....	½	lb	0 2 0 6
Capelcums.....	½	100 1 6	3 0	Potatoes.....	bushel	3 6	7 0
Cauliflowers.....	dozen	3 0	6 0	Kidney.....	bushel	5 0	7 0
Celery.....	bundle	1 6	2 0	Radishes.....	doz. bunches	1 0	1 0
Coleworts.....	doz. bunches	2 0	4 0	Rhubarb.....	bundle	0 6	0 9
Cucumbers.....	each	0 6	1 0	Salsify.....	bundle	0 9	1 0
Endive.....	dozen	1 0	2 0	Scorzoneria.....	bundle	1 0	0 0
Fennel.....	bunch	0 3	0 0	Seakale.....	basket	0 0	0 0
Garlic.....	½	lb	0 6 0 0	Shallots.....	½	lb	0 3 0 0
Herbs.....	bunch	0 2	0 0	Spinach.....	bushel	2 6	4 0
Lettuce.....	dozen	1 0	2 0	Turnips, new.....	bunch	1 6	2 6


WEEKLY CALENDAR.

Day of Month	Day of Week	MAY 30—JUNE 5, 1878.	Average Temperature near London.			Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h. m.	h. m.	h. m.	h. m.	Days.	m. a.	
30	TH	ASCENSION DAY.	68.0	45.2	56.6	3 52	8 2	2 21	6 58	28	2 44	160
31	F	Royal Horticultural Society—Great Summer Show	69.1	45.1	57.1	3 51	8 3	2 47	8 11	29	2 36	161
1	S	[closes.	68.2	44.1	56.1	3 50	8 5	3 35	9 16	0	2 18	162
2	SUN	SUNDAY AFTER ASCENSION.	68.4	45.0	56.7	3 50	8 6	4 17	10 10	1	2 8	163
3	M	Royal Geographical Society at 8.30 P.M.	69.0	44.4	56.7	3 49	8 7	5 25	10 50	2	1 58	164
4	TU	Zoological Society at 8.30 P.M.	69.1	44.8	57.0	3 48	8 8	6 43	11 18	3	1 49	165
5	W	Royal Microscopical Society at 7 P.M.	70.6	47.0	58.8	3 48	8 9	8 6	11 39	4	1 37	166

From observations taken near London during forty-three years, the average day temperature of the week is 68.9°; and its night temperature 45.1°.

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PREPARING STRAWBERRY PLANTS FOR PLANTING.

N making young plantations of Strawberries it is very important for the perfect and rapid success of the undertaking that the very best young plants obtainable are used. In many instances there is not sufficient attention paid to this, as evidence of it is found in the inferior plants, or plants of any description, that are so often planted without any selection or preparation. It is a very common practice to allow the runners to root into the ground around the old plants, and when planting time comes they are drawn up from there and planted in their permanent quarters. As a rule, plants treated in that manner grow little or nothing for months after they are planted, and it takes them all the following season to grow into fruiting state; consequently they are two or occasionally three years old before they bear a full crop. This is a serious waste of time, for there is no reason why the plants should not bear as heavy a crop the first year as the third.

We have some long rows of young plants now with four and five dozen berries set on each, and the plants were not formed into runners at this time last year. About the end of last June when the runners had produced four and five leaves each, and just when they were beginning to emit little roots where they were resting on the ground, they were taken in hand to prepare for planting. Some hundreds of 3-inch pots were filled with a rich mixture of half-decayed manure and half loam. All the best of the runners were selected, and each one was placed on the surface of the soil in the flower pot with the little roots in the centre. A small stone was laid on each runner close to the neck of the plant to steady it in the pot until the roots could affix it firmly. The pots were watered as required, the soil never being allowed to dry, and the pots were quickly filled with roots. The young plants were then quite able to do without any support from the parent plants, and the runners were cut close to the edge of the pot. The plants were then placed close together along the edge of a walk fully exposed to the sun. Here they soon became quite hardy, and about the middle of August they were planted where they are now bearing a crop. When planted every one of them had a mat of roots, which took to the open soil at once, and by the end of September they were quite established in the ground. No doubt it is owing to this that they are doing so well now; and although layering them into pots is a little trouble at first, it is amply repaid afterwards. As the time for selecting Strawberry runners is again close at hand I certainly advise all who desire strong plants and early crops to adopt this plan of raising their young plants.—A KITCHEN GARDENER.

CHRYSANTHEMUMS—SUMMER-STRUCK PLANTS.

As a gardener my time and attention have to be divided amongst various genera of plants, the Chrysanthemum being one of these as a plant useful for cutting and decorative

purposes; apart from which it is a plant most extensively grown for exhibition, more particularly around London, where numerous societies have sprung up of late years, and are still increasing, the express object of them being to encourage the growth of the Chrysanthemum. Judging from the beauty and excellence of the specimens exhibited no doubt can exist that these societies have produced the desired effect.

Of exhibition plants, however, it is not my present intention to speak, but to point out how a number of useful plants may be obtained for decorating rooms and conservatories from cuttings taken early in June. Much finer and larger blooms may of course be had by taking cuttings when the old plants are in bloom in November and growing on throughout the spring; but smaller plants, even at the expense of not having the flowers so fine, are very useful, for being in smaller pots they may be moved about and changed more easily, and are more useful for small stages and vases for indoor decoration. I am aware that at this time of year Chrysanthemum lore is not very popular, nevertheless if good results are wanted they now need as much attention as at any time.

The method of procuring a supply, as just stated, is to take the young tops from the old plants, as many as may be required, the first or second week in June, and insert them immediately in sandy soil in 5-inch pots, place them in a frame on a hotbed, and to be kept sprinkled and shaded for a few days till rooted—the main point for their rooting quickly is not to let the cuttings flag—then to be gradually hardened off in a cold frame for a week or so. When the roots reach the sides of the pots they may be divided and potted into 3-inch pots, using a compost of turfy loam and a little well-rotted manure, with enough sand to keep it porous. Place them back in the frame, and keep close a few days till established, when they may have all the air and showers possible; and when rooted through repot them into their blooming pots, which may be 5, 6, 7, or 8-inch, according to their strength. The large-flowering varieties will do better in the latter size, an intermediate shift not being at all necessary. I have before now divided the rooted plants from the cutting pots, and put them in their blooming pots at once with very good results. As to stopping, as it is termed, or pinching out the extreme point of the young plant to induce a bushy habit, for the large-flowering kinds once will be sufficient; but the Pompons, especially the early kinds, as the Cedo Nullis, may be stopped till the middle of August.

The chief attention throughout the summer will be to give them plenty of water as they require it, with clear weak liquid manure twice a week, stirring the surface with a stick now and then—a practice that is very beneficial for most plants in pots, as well as vegetables in the open ground. In speaking of using liquid manure I have used the word "clear," and it is important, for if used in a thick state the sediment forms a coating over the surface of the pots, excluding air and rendering the plants less vigorous. A south aspect, the pots plunged halfway to their rims in a bed of coal ashes, is a good position for them, giving them enough room so that air may circulate freely about them

and induce short and firm growth, for without it good blooms must not be expected. A sprinkling overhead in the evenings of fine days promotes health and a free growth. In October a light airy greenhouse is the most suitable place for them, syringing them once a day till the flowers show their colour, when they may be transferred to where wanted. At this season, too, they require an abundance of water. By the above treatment I have had plants from a foot to 18 inches in height, bushy, and with foliage from top to bottom, and with good heads of bloom.

A method practised by some cultivators of the Chrysanthemum is to put the young plants in the open ground, attending them as to stopping and watering as for those in pots, and when the buds appear or begin to open to take the plants up and pot them, by carefully cutting the roots, and allowing them to produce fibres again. Now I have tried this plan, and have seen many others do it, but from the appearance of the plants so grown after they are lifted and showing their colour I have noticed that when the plants should be at their best the greater part of the foliage has turned yellow very prematurely, and when stripped of it they have a painfully bare appearance, so that it is a plan I will neither adopt myself nor recommend to others. Much larger plants no doubt may be obtained, but as the roots ramify and spread out in all directions the cutting them back to enable their being put into pots I am convinced does them an injury—an injury detrimental to the bloom and foliage too.

Generally speaking very few gardeners have the opportunity or even the desire of testing a very large number of sorts, but good growers generally manage to acquire those most suitable for their purpose. This applies more particularly to those who grow for exhibition, but the undermentioned kinds are good and useful either for exhibiting or not:—Large-flowering: Mrs. Rundle, Mrs. Dixon, George Glenny, Jardin des Plantes, Empress of India, Aurea multiflora, Antonelli, General Bainbrigge, Lady Harding, Alfred Salter, Fleur de Marie, Little Harry, Queen of England, Nil Desperandum, Prince of Wales, Princess of Wales, Prince Alfred, Mr. Brunlees, Robert James, St. Patrick, La Belle Blonde, Mrs. Haliburton, Julie Lagravère, Golden Eagle, Venus, and Faust. Amongst Pompons the following are as good as any:—Cedo Nulli, Lilac and Golden Cedo Nulli, Middle Marthe, Bob, Brilliant, Aigle d'Or, Antonius, Mr. Astie, Duruflet, Hélène, Astrea, Rose Marguerite, Madame Montells, Général Canrobert, St. Thais, Mrs. Hutt, White Trevenna, Rose Trevenna, Calliope, Mrs. Wyness, Marie Stuart, and Marabout. There are many others all more or less good, but all the above-named are well-proved kinds. The Japanese kinds are curious and ornamental, and a few kinds are worth having in every collection. Your able correspondent Mr. Moorman called particular attention of them to your readers some time ago.—A. HARDING, *Orton Hall*.

ROSE PROSPECTS.

As there has been presented to me an unusually good and delightful opportunity (the inevitable umbrella as the only drawback being every day called into requisition) of visiting several gardens of our leading rosarians, both amateurs and nurserymen, in the west midland district from Hereford even to Torquay, I am happy to state that the prospects of the fast-approaching Rose season, in spite of long drenching rains and successively sunless days, never were, in my somewhat long experience, more hopeful. Roses everywhere that I have seen are breaking healthily and vigorously, and only require that anxious supervision and constant attention which the queen of flowers demands from her loyal subjects as a just tribute to her incomparable merits and imperial position. Nature's prodigality is man's opportunity, and as well might one expect a crèche or baby farm to produce the dimpled cherubs of the maternal well-appointed nursery as the neglected half-starved occupants of too many *soi-disant* roseries (it matters not whether of peer or peasant) the splendid exhibits of a Baker or Jowitt, a Cranston or George Paul.

A lady of title wrote to me a short time ago that she could not see her way to patronise a certain Rose show because she felt her inferiority to nurserymen, and strongly objected to her Rose trees or bushes being cut down to a few single shoots. Now, I have before in the "Rose Journal" expressed an opinion that misapprehension about the very rudiments of Rose lore gives to some extent a clue to the mysterious reason of the failure of Rose shows in a financial aspect, and such objections as these appear to supply a case in point; for I hold no

amateur need necessarily yield the pride of place to a nurseryman in an open class, certainly not in small exhibits, for Teas we often find taken by amateurs; while the fact of the clearly defined line between the two divisions of nurserymen and amateurs, preventing all possible fear of mistake, undue rivalry, and jealousy, has always seemed to me a most praiseworthy feature in Rose schedules, as avoiding a rock of offence on which many a general horticultural society has split. With regard to the other objection alluded to by my correspondent, I need only say that as to the advisability of cutting down a Rose tree or bush to a few shoots more or less, if done discreetly—whether it be merely with a view to garden decoration and general effect, or to the health and greater longevity of the plant, or for exhibition purposes—there could practically be but one opinion.

Asking pardon for this digression I would call especial attention at the growing season to the necessity of prompt and severe disbudding—a process if anything more important than late pruning, helping as it does not only to strengthen the roots and evenly to distribute and concentrate the flow of sap, but by removing weak, injured, and crowded shoots to allow a free circulation of air throughout the plant, and especially that of light, which is the most dreaded enemy of all natural foes—grubs, aphides, mildew, &c.—as well as moral. Of equal value, and about the same time as disbudding, mulching should (if not already) be done. I noticed lately in the perfectly attended to and highly cultivated Rose garden of my friend Mr. Baker of Heavitree, that it is his custom to cover over his mulching (pig-dung manure for choice) with a fairly thick layer of soil taken off a spade's breadth from between the rows of his Roses. This is a simple but excellent plan, for two reasons—it prevents undue evaporation, and removes the common objection of unsightliness. Another "wrinkle" I may mention here with profit, I believe, to some of your readers is this—Mr. Baker never waters his Roses with any "goodies" in the shape of liquid manure of any kind or degree until the flower buds are in the course of early development. This is a very important distinction; and especially in a wet season like last year (I speak very feelingly on this point) goes far to make the whole difference between failure and success, premature application leading to coarse-growing non-blooming shoots.

It was a very gratifying sight to notice within a few days how remarkably well likewise the Rose garden of my near neighbour and friend Mr. Jowitt, the winner of the champion cup last year, looked. So marvellously and evenly bright indeed do the prospects of these two great rosarians appear to me that the public will look with all the keener interest to their meeting, and if there should be a "dark horse" (as one hears mysteriously), the more the merrier at the National, at the Crystal Palace, and the West of England Rose Shows, where as holders they will again contend for Messrs. Cranston's two grand silver cups.

I have had within the last few days several opportunities of seeing Messrs. Cranston & Co.'s nurseries, and nothing can look more promising than the prospect of their Roses, whether their vast extent (the largest in the United or any kingdom) or the healthiness of the plants themselves be considered. I may mention *en passant* that the large Tea and Noisette house of this firm has been during the spring a thing of beauty to be seen and enjoyed, but spoilt by description. Fancy thousands of thousands of the most charming of all Roses of every conceivable tint, and shape, and fragrance, in the most perfect state of health and luxuriance—standard and half-standard, bush and climbing Roses everywhere meeting the delighted gaze—and just a slight idea can be formed of its unsurpassed loveliness.

Yesterday I passed a pleasant hour at Mr. Curtis's nursery at Torquay, and having been there several times before I was much struck by the extent to which he had increased the hem of his border. There have been, I am told, some six or seven acres added to these already fine nurseries. I was especially struck with a piece of twenty thousand H.P.'s on standard Briars, which I have no hesitation in describing as the finest I have ever seen. Mr. Curtis's Roses possess a virtue we of Herefordshire would much like to possess, I mean their early maturity, and for this reason if for no other (especially if this wet sunless weather lasts), I venture to predict the Torquay nurseries will be favourably heard of at our early exhibitions. I saw in one of Mr. Curtis's houses a Tea Rose I think most highly of, raised by Madame Ducher, it is named Madame Welch, and said to be after *Devoniensis* impregnated by

Souvenir d'un Ami; I failed, however, to recognise the parentage. It is a bold, grand-petalled flower of a fine growthy habit and very distinct, and will be appreciated when known.—THE HEREFORDSHIRE INCUMBENT.

ROYAL HORTICULTURAL SOCIETY.

GREAT SUMMER SHOW.

MAY 28TH, 29TH, 30TH, AND 31ST.

EVER since the great and spontaneous display made by the leading nurserymen on July 21st, 1875, the meetings and exhibitions of the Society have been both for extent and quality one continued series of successes. The Show referred to was of an honorary character—a great horticultural rejoicing; but the one following of June 7th and 8th, 1876, was competitive. This was succeeded by the memorable gathering of the 2nd of May of last year, when Her Majesty graciously recognised the work of the Society, and visited such a display as was never seen before in any country—namely, the wonderful productions of the growers of plants for Covent Garden Market and the embellishment of metropolitan homes. This signal success was followed six weeks afterwards by a success if possible still greater, when, on June 19th, H.R.H. the Prince of Wales met with such a loyal reception, and when the gentle and popular Princess distributed the prizes that were awarded at the previous Exhibition. Between those great Exhibitions many extensive and valuable displays have been arranged at the periodical meetings of the Society by the principal nurserymen and a few spirited amateurs, and now comes the event of the year so far as regards London, and the Show is greater, brighter, and better than ever; in fact, it is without doubt the most extensive, varied, and rich Exhibition that has been seen in London since the Great International display of 1866. Being held earlier in the season than the shows above referred to, flowering plants preponderate where before foliage prevailed, and flowers, no doubt, more than foliage command the admiration of the British public. Besides the flowers to attract was that other great attraction which is irresistible to a loyal people—the presence of Royalty, the heirs to the thrones of the two most powerful nations of the world. Nothing could have been more gratifying to a large and important section of the community than the announcement that their Royal and Imperial Highnesses the Prince and Princess of Wales and the Crown Prince and Princess of Germany intended visiting the Exhibition. As soon as that fact became known it was certain that horticulturists would put forth their strength and render the Show worthy of such distinguished and highly appreciated patronage. So great are the advantages of horticulture, so powerfully does it contribute to the enjoyments, even the necessities of life, so numerous are the workers engaged in the craft, that it is no wonder it should receive a share of that Royal recognition that gives such a great impetus to whatever it is vouchsafed. The Royal party arrived about twelve o'clock. The Crown Prince and Crown Princess with their suite came punctually at twelve, attended by Count Seckendorff, Major von Panwitz, and Viscount Bridport, and were received by Lord Aberdare (the President), Mr. G. T. Clarke, V.P., Mr. Henry Webb (Treasurer), Mr. Philip Miles, Major Mason, Mr. Haughton, Mr. Talbot Dillwyn Llewellyn, and Dr. Denny; and the Princess of Wales arrived about five minutes later, accompanied by her brother Prince Waldemar of Denmark, and the Princess Victoria of Wales, attended by Lady Suffolk and Col. Teesdale. They were received by Lord Alfred S. Churchill, V.P., and Dr. Hogg, Secretary.

The Exhibition now arranged, and which continues until Friday night, is emphatically a competitive one, the aggregate value of the prizes offered exceeding those provided at any other show hitherto held during the present season. Of the total amount of £1000 we find £39 apportioned to stove and greenhouse plants, £114 to Orchids, £30 to new and rare plants, besides the valuable cups provided by Mr. Bull; £68 for Azaleas; £85 for Roses; £118 for Ferns, Palms, and fine-foliaged plants; £68 for Pelargoniums, £40 for fruits, and £12 for vegetables; and in addition Sir Trevor Lawrence's liberal prize of £10 for the best specimen Orchid, and Mr. Gallop's prizes of £10, £7, and £5 for twelve plants of Miles' "Spiral" Mignonette. Such are the awards provided, let us now see by whom and in what manner they are won. We may first, however, briefly glance at the general character and effect of the Exhibition.

As on previous occasions the most important collections are arranged in the large marquee. On descending the steps from the Council room entrance to the gardens we arrive immediately at a tent 100 yards in length containing new plants, Orchids, Mignonette, Gloxinias, Cactuses, collections of cut flowers, fruit, and vegetables—a foretaste and an appetising one of the feast to follow. From this tent a canvas-covered way 100 yards long conducts to the great marquee, but before arriving at which we find

another extensive tent filled with succulents, Pelargoniums, and a splendid miscellaneous collection of plants from some of the leading nurserymen.

On arriving at the large marquee a cool, refreshing, and exceedingly pleasing arrangement of rocks, plants, and trickling water by Messrs. Dick Radclyffe & Co. first arrests notice. On the right and left are Ericas, and beyond them grand collections of Ferns. We now reach the hollow centre of the tent, and whichever way we turn the scene is one of great splendour. At our feet is the central circular group of Messrs. Veitch, which is an arrangement of extraordinary richness. This fine central group, which had the post of honour, has as a central plant a splendid specimen of the valuable Palm *Kentia Fosteriana*, surrounded by Palms of more slender growth, and associated with the stately *Anthurium Brownii*, *Veitchii*, and the beautiful *Waroqueanum*. Bright-foliaged *Dracenas* and choice *Crotons* were in the group, and very effective is *Crinum Verschaffeltianum*. The brilliant colour is imparted by a profusion of spathes of *Anthurium Scherzerianum*, *Oncidium crispum*, and the very fine *Hemantus Kalbreyeri*. Extremely bright also are the plants of *Dendrobium suavisimum* and *Oncidium concolor*, which are both remarkably good, as also is another bright-flowering plant of *Rhododendron Crown Princess* of Germany, orange buff with chocolate stamens. Softer colours are represented by many splendid Orchids—*Odonoglossum vexillarium*, *Pescatorei*, *Alexandrae*, *citrosium*, *cirrhosum* and *Rozii*; gorgeous *Cattleyas*—*Mossiae* and *Mendeli* by dozens, and *Lælia purpurata*; a fringe of *Gloxinias*, tuberous *Begonias*, and Ferns imparted a charming finish to a valuable group. *Dendrobiums* and *Nepenthes* elevated above the other flowers impart grace and freedom to the arrangement. *Utricularia montana* is extremely fine and very beautiful by its profusion of white flowers, and beauty of another kind was represented by the fine *Tillandsia major zebrina*.

At the extreme end of the tent is what is unquestionably the most imposing feature of the Show, such a sight that has certainly never been seen before and can hardly be expected to be seen again—namely, the magnificent bank of Roses in pots from Mr. Turner of Slough. The veteran cultivator has surpassed himself, and has nobly crowned all his past efforts, great as those are admitted to be. The semicircular mound is occupied by the nine giants, which even without the historical Paul Perras, the hero of quite half a hundred fights, is one of the finest groups ever set up. Spreading from the central are two wings occupied by about eighty specimens in 10-inch pots, the whole, both as regards foliage and blooms, are as near perfection as any Roses have ever been seen. The group, backed by towering Tree Ferns, cannot in any adequate manner be described. These Roses are the wonder of all observers—no one knows how they have been grown so well, but it is the fact that it required sixteen horses to convey them to the Show. Besides receiving the first prizes for nine and twenty plants Mr. Turner was deservedly awarded a gold medal for this magnificent collection. At the opposite end are the nine splendid specimens from Messrs. Paul & Son, backed by a collection of Palms.

Near to Mr. Turner's Roses the largest of the side mounds is wholly occupied with plants from the establishment of Mr. Bull. The centre comprising large and valuable Palms, Tree Ferns, and ornamental-foliage plants margined with flowering plants of great beauty and rarity. Most charming amongst these is a bank of Orchids, consisting of groups of *Odonoglossum vexillarium*, *O. Pescatorei*, *O. Alexandrae*, &c., nestling in a carpet of *Gauze Ferns*—a truly splendid finish to a grand group, many plants in which are noticeable. *Anthurium Scherzerianum album* with ten spathes must not be passed over, nor the noble Palm *Pritchardia grandis*, the only one in England if not in Europe. Under the shade of this plant a group of the strikingly marbled *Dracæna Goldiana* shows to great advantage. *Phyllotenum Lindenii*, very fine, *Hemantus cinnabarinus*, *Hoffmannia Ghiesbreghtiana variegata*, *Pelargonium Prince of Wales*, very bright, the remarkable *Ataocia cristata* with its brown-black flowers and long tails, *Coffea liberica*, and grand *Cycads*, all arrest attention. It is a great group of great value.

The other mounds in the centre of the tent are occupied—one with Azaleas, Palms, and fine-foliaged plants, the other with fine-foliaged plants and a group of decorative plants from Mr. Aldous, and the third by Azaleas again, and such an artistic example of bold and tasteful arrangement of plants by Mr. Wills as even that renowned decorator has not previously achieved. It is arranged in a series of rugged terraces, the base being carpeted with *Lycopodiums*, out of which spring in pleasing informality choice Orchids, *Gloxinias*, and *Amaryllises*. Half way up the bank is a mossy dell, and beyond a mound closely covered with feathery *Spireas* (*Hoteias*); and besides the low plants noticed, and what constitute the charm of the group, are elegant tall Palms, *Dracænas*, and other fine-foliaged plants dotted here and there, representing tropical trees growing out of a carpet of moss and flowers. Mr. Wills' and Mr. Aldous' group were in competition in Class 18, and the prizes were awarded in the order of their names. The sides of the tent are occupied by other competing collections. The second-prize group has an extremely

chaste appearance, owing in a great measure to its beautiful fringe of *Caladium argyrites*.

We now pass to the several classes.

STOVE AND GREENHOUSE PLANTS.—In the open class for twelve plants in flower, first honours go to Mr. Tudgey, gardener to J. F. G. Williams, Esq., Henwick Grange, Worcester, for a really fine group, consisting of two grand *Azaleas*, *Ericas* *Cavendishiana* and *ventricosa* *magnifica*, *Clerodendron* *Balfourianum*, *Bougainvillea* *glabra*, *Pimelea* *decussata*, *Allamanda* *grandiflora*, *Dracophyllum* *gracile*, a magnificent *Anthurium* *Scherzerianum*, *Aphelexis* *macrantha*, and *Statice* *profusa*. Messrs. Jackson & Sons, Kingston, are placed second. Extremely fine in this collection are *Erica* *eximea* *superba*, a dense globe of flowers $4\frac{1}{2}$ feet in diameter; *Aphelexis* *macrantha* *purpurea*, and *Dracophyllum* *gracile*. The third prize is awarded to Mr. Peed, Roupell Park Nurseries, for medium-sized symmetrical plants about 8 feet in diameter and in good condition.

In the nurserymen's class for eight plants Messrs. Jackson and Sons have the premier position with a very fresh and bright group, the plants averaging $3\frac{1}{2}$ feet in diameter; they comprise *Ericas* *affinis* and *Candolleana*, *Statice* *profusa*, *Hedera* *tulipifera*, an *Aphelexis*, *Azalea*, and *Anthurium*. Mr. B. S. Williams secures the second place. The white *Erica* *magnifica* in this collection is a splendid plant, and very good are the *Clerodendron* and *Aphelexis*. In the corresponding class for amateurs the first prize is awarded to Mr. Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, for an excellent collection. The most striking plants are *Azalea* *Duchesse* *Adelaide* *de* *Nassau* in magnificent bloom, *A. Iveryana*, *Erica* *Cavendishiana*, *Clerodendron* *Balfourianum*, *Pimelea* *Hendersoni*. An *Anthurium*, *Aphelexis*, and *Hedera* *completa* the group. Second honours go to Mr. Tudgey, who stages large and fine plants, but some of them not quite fresh and well bloomed. The most noticeable and fine are *Erica* *ventricosa* *grandiflora*, a globe 3 feet in diameter, and another *Erica* 4 feet in diameter. Mr. Wheeler, St. John's Wood, Regent's Park, has the third prize.

AZALEAS.—In the nurserymen's class for eight plants, distinct, Mr. Turner, Slough, is awarded the chief prize for his informally trained specimens, in which healthy foliage is seen amidst fine flowers. *Souvenir* *de* *Prince* *Albert*, 5 feet high, is a splendid plant. Messrs. Jackson follow with small bushes 2 to 3 feet in diameter. In the corresponding amateurs' class for the same number of specimens Mr. Child, Garbrand Hall, secures the premier place with undoubtedly the finest *Azaleas* in the Exhibition—pyramids ranging from 4 to 6 feet high, densely covered with fine flowers. The varieties are *Juliana*, soft scarlet; *Model*, rose; *Goethe*, white; *Chelsoni*, orange scarlet; *Charles* *Encke*, flesh and salmon; *Grand* *Crimson*, really grand; *Reine* *des* *Pays* *Bas*, lilac; and *Tricolor*, white faintly flaked rose and scarlet. Mr. Weston, gardener to D. Martineau, Esq., Clapham Park, is awarded the third prize. In the open class for fifteen plants in pots not exceeding 12 inches in diameter Mr. Ratty, gardener to R. Thornton, Esq., The Hoo, Sydenham Hill, is awarded the place of honour with well-bloomed specimens of dwarfs and pyramids. *Callina*, deep rose; *Souvenir* *de* *Prince* *Albert*, *Bernard* *Andreas*, and *Mons.* *Thibaut* are the most effective varieties. Mr. Turner was placed second for plants rather smaller, but in good variety and well bloomed.

ERICAS.—In the nurserymen's class of eight plants Messrs. Jackson & Son had the premier position. Some of the plants were rather loose, but others were good and had fine flowers—notably *E. depressa*, *E. ampullacea* *obovata*, *E. Candolleana*, and plants of the *ventricosa* type. In the corresponding class for amateurs Mr. Tudgey is awarded the first position with some excellently bloomed specimens about 3 feet in diameter; very fine are *E. depressa*, *ventricosa* *coccinea* *minor*, *Cavendishiana*, *tricolor* *speciosa*, and *tricolor* *Wilsoni*. Mr. Weston, gardener to D. Martineau, Esq., is placed second; Mr. Wheeler is awarded the third prize.

ORCHIDS.—The display of these is very extensive, occupying almost the entire length of a tent nearly 100 yards long, and the collections are generally excellent. In the amateurs' class for fifteen plants, distinct, Mr. Rutland, gardener to the Duke of Richmond, Goodwood, wins the first place with a collection containing some magnificent plants. *Cattleya* *Mossiae* is very fine. *C. Mossiae* *magnifica* is 3 feet across and has fifty gorgeous flowers. *Vanda* *suavis* has four grand spikes, and *V. suavis* *tricolor* three. *Cypripedium* *caudatum* has twelve remarkable flowers. *Odontoglossum* *Alexandrae* has five strong spikes; and singular rather than beautiful in this fine group are *Epidendrum* *ciliare* and *Cypripedium* *Hookeri*. Mr. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, secures the second prize with a fresh and good collection. *Dendrobium* *formosum* *giganteum*, *D. Dalhousianum*, *D. Bensoniae*, and *D. thyrsiflorum* are excellently represented. *Odontoglossum* *Alexandrae* is very richly coloured, as also is *Masdevallia* *Harryana* with twelve fine flowers. *Cattleya* *Mossiae* *superba*, *Cypripedium* *spectabile*, *C. villosum*, and *Odontoglossum* *citrosium* are very good in this collection.

In the corresponding nurserymen's class for the same number of plants Mr. Williams is in his old position—first, with a rich and

splendid group composed of *Cypripedium* *niveum* with about fifty flowers; *C. caudatum*, twelve grand blooms; and *C. barbatum* *superbum*; *Cattleya* *lobata* *Mendeli* and *C. Mossiae*, *Lælia* *purpurata*, *Dendrobium* *Jamesianum*, *Masdevallia* *Harryana*, *Vanda* *insignis*, *Dendrobium* *nobile*, *Odontoglossum* *Alexandrae*, *Calanthe* *veratrifolia*, and a grand plant of *Cypripedium* *villosum* about 3 feet in diameter. Messrs. Jackson & Sons have the second prize with an excellent collection. *Saccolabium* *retusum* and *Lycaste* *aromatica* in this group are greatly admired. The nurserymen have also a class provided for six plants. Mr. Williams again wins the chief place with six splendid examples of *Cattleya* *Mendeli* with eight grand flowers, *Odontoglossum* *vexillarium* *fourteen*, *Cypripedium* *caudatum* *twenty*, *C. barbatum* *superbum* *fifty*, *Dendrobium* *thyrsiflorum* with thirteen fine racemes, and *Masdevallia* *Iveryana* with eighteen flowers. Messrs. Jackson & Sons are second with excellent examples of *Dendrobium* *thyrsiflorum*, *Odontoglossum* *Alexandrae*, *Vanda* *suavis*, *Phalenopsis* *amabilis*, *Dendrobium* *nobile* *cerulescens*, and *Cattleya* *Mossiae* with sixteen flowers. Mr. Henry James, Castle Nursery, Lower Norwood, is third with *Dendrobium* *densiflorum*, *Cattleya* *Mendeli*, *Oncidium* *crispum*, *O. Marshallianum* *fine*, *O. Alexandrae*, and *O. cirrhosum* *very* *good*.

In the amateurs' class for ten Orchids Mrs. Torr, Garbrand Hall, wins the first prize with splendid examples of *Aërides* *Fieldingii*, *Oncidium* *Devonianum* and *O. ampliatum* *majus*, *Brassia* *maculata* *superba*, *Dendrobium* *nobile*, *Odontoglossum* *crispum*, *Cypripedium* *crispum*, *Dendrobium* *crystallinum*, *Lælia* *purpurata* *superba*, and *Cypripedium* *niveum* and *barbatum* *superbum*.

SPECIMEN ORCHID.—The prize of £10 offered by the great patron of Orchids, Sir Trevor Lawrence, Bart., M.P., for the best plant not made up, is won by Mr. Perry, gardener to J. W. Miles, Esq., Shirehampton, Bristol, with a grand specimen of *Lælia* *purpurata* with nine spikes and thirty-four magnificent flowers. Splendid also in this class is *Dendrobium* *thyrsiflorum* from Mr. Tutecher, gardener to P. S. Miles, Esq., King's Weston, Bristol. Mr. Child also exhibits *Cypripedium* *Stonei* *very* *fine*.

NEW PLANTS.—In the open class for nine plants not in commerce, in or out of flower, Mr. Bull is placed first with a striking collection, consisting of *Dieffenbachia* *reginae*, prevailing colour a greenish cream, blotched green, very effective; *Anthurium* *insigne*, deeply trilobed foliage, striking; *Davallia* *fijiensis*, very elegant; *Philodendron* *Carderi*, large velvety foliage veined with green; *Croton* *formosus*, foliage like *C. Weismannii*, but intensely coloured with crimson; *Dieffenbachia* *Leopoldi*, fine ovate foliage 10 inches long by 6 wide, rich green, with a midrib of pure white; *Aralia* *concinna*, rich dark green, very elegant; *Dipteris* *Horsfieldii*, and *Zamia* *princeps*, certainly one of the most elegant of the Cycads. Mr. Williams is second with *Encephalartos* *latifrons*, one of the grandest Cycads we have seen, it is of stately growth, and has rich green foliage; *Croton* *Crown* *Prince*, highly attractive and very promising; *Aralia* *nobilis*; *A. spectabilis*, very elegant; *Croton* *Williamsii*, a bold *Croton* and richly coloured; *Adiantum* *Williamsii*, a beautiful Fern of the *A. cuneatum* type, but abundantly distinct; *Wallichia* *zebrina*; *Alsophila* *Macleayi*, grand bright green fronds; and *Dracaena* *Mastersii*, dark bronze, richly coloured with bright crimson, fine. In the class for twelve plants sent out in 1875, 1876, and 1877, Mr. Bull again wins the premier position with plants not only new and rare, but fine and in superior condition. The collection consists of *Dieffenbachia* *maculosa*, bright and telling; *Bowenia* *spectabilis* *serrulata*; *Philodendron* *gloriosum*, large cordate leaves, satiny green, with ivory white midribs; *Pavonia* *Wiotii*, *Croton* *Disraeli*, *Cibotium* *Menziesii*, *Anthurium* *Veitchii*, *Anthurium* *Dechardii* with four fine spathes, interior pure white, exterior green; *Cataglyphis* *Hopeli*, a fine Cycad; *Lomaria* *discolor* *bipinnatifida*, a splendid Australian Fern; *Dendrobium* *suavissimum*, bright yellow, maroon lip, and the finest plant of *Dracaena* *Goldiana* that has yet been exhibited. Mr. B. S. Williams follows with a very fine group, comprising *Maranta* *Massangeana*, *Croton* *Andreanum*, *Kentia* *Mooreana*, *Adiantum* *princeps*, *Dracaena* *Imperator*, *Brahea* *filamentosa*, *Croton* *Queen* *Victoria*, *Areca* *flava*, *Platyceium* *Willinkii*, *Croton* *Disraeli*, *Nepenthes* *intermedia*, and *Dracaena* *speciosa*.

MR. BULL'S CUPS.—In the class for twelve new plants introduced since the commencement of 1875 Mr. Rann, gardener to J. Warren, Esq., Handcross Park, Sussex, secures the fifteen-guinea cup with *Croton* *chrysophyllus*, very brilliant, *C. trilobus*, *C. Hendersonii*, *Aralia* *filicifolia*, *Artocarpus* *Cannonii*, *Acalypha* *marginata*, *Dieffenbachia* *illustris*, *Aralia* *elegantissima*, *Brahea* *filamentosa*, *Cycas* *Normanbyana*, and *Croton* *imperialis*. Mr. T. Penfold, gardener to the Rev. Canon Bridges, Beddington, Croydon, wins the ten-guinea cup with a really admirable collection. *Aralia* *elegantissima*, *Croton* *Disraeli*, *Lomaria* *Dalgarrensis*, *Anthurium* *candida*, *Artocarpus* *Cannoni*, *Dracaena* *Goldiana*, *Croton* *pictus*, are particularly good. Mr. Tudgey secures the five-guinea cup with smaller plants. Mr. B. S. Williams is the only exhibitor in the nurserymen's class, and receives the fifteen-guinea cup with an admirable collection.

FINE-FOLIAGED PLANTS.—The competition for eight fine-foliaged plants (amateurs) is very spirited, Mr. Rann, gardener to J. Warren, Esq., Handcross Park, Sussex, winning first honours

with enormous plants of *Cycas circinalis*, *Cibotium princeps* very fine, *Encephalartos villosus*, a magnificent *Cycas revoluta*, and *Crotons Youngii*, interruptus, and variegatus 7 and 8 feet high and nearly as many through. Mr. E. Tudgey, gardener to J. F. G. Williams, Esq., Henwick Grange, is placed second with a very fine collection, amongst which is a large and well-coloured plant of *Sarracenia purpurea*; and Mr. Penfold, gardener to Rev. Canon Bridges, Beddington, third. In the class for fifteen fine-foliage plants in pots not exceeding 12 inches in diameter Mr. W. Bull wins first honours with grand examples of *Aralia venusta*, *Pandanus Veitchii*, *Cocos Weddelliana*, *Dracenas amabilis* and *Goldiana*, *Anthurium crystallinum*, a very fine plant of *Phyllo-tænium Lindenii*, *Croton roseo-pictus* in splendid colour, *Curculigo recurvata striata*, *Thrinax barbadense*, *Lomaria discolor bipinnatifida*, *Encephalartos horridus volutus*, *E. villosus*, *E. Caffra*, and *Dion edule*. Mr. B. S. Williams being placed second with *Aralia Sieboldii* aureo-variegata, *Cupania filicifolia*, *Croton Disraeli*, *Pheniceophorum seychellarum*, *Theophrasta imperialis*, *Cycas media*, *Dracenas Mrs. Bause* and *Berkeleyi*, *Verschaffeltia splendida*, *Cyathea Burkei*, *Areca Verschaffeltii*, *Martinezia disticha*, *Kentia australis*, *Yuca aloifolia variegata*, and *Spathiphyllum pictum*. In the nurserymen's class for eight fine-foliage plants Mr. B. S. Williams is in the chief position with a collection composed of grand examples of *Dasyliroton acrotrichum*, *Cocos Weddelliana*, *Cycas revoluta*, *Pandanus Veitchii*, *Croton Youngii*, *Chamærops humilis*, and *Encephalartos Caffra*. Messrs. Hooper, Covent Garden, are awarded the second prize with a smaller but good collection.

For six large Palms, distinct (open), Mr. C. Rann wins the first place with very large and admirably grown plants of *Phoenix reclinata*, *Pheniceophorum seychellarum*, *Latania borbonica*, *Verschaffeltia splendida*, *Areca sapida*, and *Livingstonia altissima*. Mr. Ley, Royal Nursery, Croydon, is placed second with plants somewhat smaller and not so finely developed as Mr. Rann's, yet very good.

FERNS.—For six stove and greenhouse Ferns (amateurs) first honours are awarded to Mr. Child for very fine *Gleichenias dicarpa* and *Mendellii*, *Davallia Mooreana*, *Dicksonia antarctica*, *Adiantum tenerum* and *farleyense*. Mr. Tudgey is placed second with a good collection, and Mr. Douglas third. Mr. Douglas's collection contains a fine specimen of *Todea pellucida*. In the corresponding class for nurserymen Mr. B. S. Williams receives the first prize for very large and very fresh specimens of *Gleichenias rupestris*, and *spelunceæ*, *Davallia Mooreana*, *Asplenium nidus*, *Cyathea medullaris*, and *Dicksonia antarctica*, the whole collection occupying a space of 15 feet by 30. Tree Ferns come from Mr. Bull and Mr. B. S. Williams in the classes set apart for nurserymen, and first and second honours are awarded in the order named. The stems of both collections could scarcely be less than 12 feet high, and those from Mr. Bull are very even and massive. Mr. Wheeler is awarded the second prize in the corresponding class for amateurs.

PELAGONIUMS.—These are excellently exhibited, especially the collections from Mr. C. Turner and Mr. James. Mr. Turner is the only exhibitor in the nurserymen's class for nine plants with *Countess*, *Prince of Prussia*, *Isabella*, *Snowflake*, *Ruth*, *Duchess*, *Great Mogul*, *Claribel*, and *Scottish Chieftain*, this last a remarkable dark-coloured variety. The plants are not large, but are very fresh and excellently bloomed—pattern plants for decorative purposes. In the corresponding class for amateurs Mr. James, gardener to F. Watson, Esq., Redlees, Isleworth, is an excellent first with plants from 4 to 5 feet through—*Princess of Denmark*, *Prince Leopold*, *Duchess of Cambridge*, *Blue Bell*, *Mary Hoyle*, *Snowflake*, *Pompey*, *Claribel*, and *Archduchess*. Mr. James Weir, gardener to Mrs. Hodgson, The Elms, Hampstead, was placed second with plants somewhat smaller. In the amateurs' class for fancies Mr. James is again in his usual place with splendid examples of *Fanny Gair*, *Roides Fantaisies*, *Juliet*, Mrs. Alfred Wigan, *Mirello*, Mrs. Graham, *East Lynn*, *Princess Teck*, and *Madame Sainton Dolby*. We have rarely if ever seen the Fancy class finer than on this occasion, especially those exhibited by Mr. James. Mr. Weir is again placed second. Mr. C. Turner, Royal Nurseries, Slough, is the only exhibitor in the nurserymen's class for fancies, and worthily receives the first prize with *Ellen Beck*, *Nelly Fordham*, *Delicatum*, *The Shah*, Mrs. Hart, *Marionette*, *Lucy*, *Fanny Gair*, and *Roides Fantaisies*.

ROSES.—These are only exhibited by the trade growers, and in the class for nine Roses, distinct, Mr. Turner is placed first, Messrs. Paul & Sons, Old Nurseries, Cheshunt, being second with large and finely developed plants, both growers exhibiting, as they alone can exhibit, splendidly. Mr. Paul staged *Dupuy-Jamain*, *President*, *Madame Margottin*, *Céline Forestier*, *Edward Morren*, *Madame Victor Verdier* (good), *La France*, and *Alfred Colomb*, very good. For twenty Roses, distinct, the size of pots unlimited, Mr. C. Turner is worthily awarded the first prize; and as we have already remarked on the excellence of the group we need now only note a few of the more prominent varieties. *Edward Morren*, *Duchesse de Vallombrosa*, *Star of Waltham*, *Comtesse de Serenyi*, *La France*, *John Stuart Mill*, *Miss Ingram*, *Marquise de Castellane*, *The Rev. J. B. M. Camm* (very free and very sweet), *Céline*

Forestier, *François Michelin*, *Madame Lacharme*, *Princess Beatrice*, &c.

MIGNONETTE.—An extensive collection of Miles's "Spiral" Mignonette is staged both by Mr. Gallop, who has the stock of this very sweet variety, and also in competition for the prizes offered; but on this occasion the individual spikes are not as fine as we have seen them, and all the plants in competition should have been disqualified, the schedule stipulating for twelve plants, whereas twelve pots are exhibited, nearly every pot containing five plants each. Mr. Gallop is awarded the Society's bronze Banksian medal for his collection, and the prizes of £10, £7, and £5 are won by Mr. Meachin, gardener to C. Armstrong, Esq., Woodslee, Withdean, Brighton; A. Chancellor, Esq., The Retreat, Richmond; and Messrs. Vigo Brothers, Withdean Nursery, Brighton.

MISCELLANEOUS COLLECTIONS.—Besides the fine groups of Messrs. Veitch and Bull above noticed, and for which gold medals were awarded, other collections are highly worthy of notice and inspection.

Messrs. Rolliesson & Sons contribute extensively and well to the Exhibition. Their collection of ornamental-foliaged and flowering plants hardy and exotic is a very large one, and is as good as it is great. The same firm also exhibit an unique collection of *Sempervivums*, *Echeverias*, &c., just as such small plants ought to be exhibited—namely, plunged in boxes surfaced with pounded bricks. They also arrange a fine group of double *Pyrethrums* in pots, and are awarded a gold medal.

Messrs. John Laing & Co., Stanstead Park Nursery, arrange a collection combining elegance with richness; the former feature being imparted by Ferns, Palms, &c., the latter by highly coloured bicolor *Geraniums*, tuberous *Begonias*, *Gloxinias*, &c. It is a very fine group and merits the silver Flora medal awarded.

Messrs. Osborn & Son, Fulham, contribute a group of stove and greenhouse plants fresh, green, and healthy, as their plants usually are, also a collection of hardy herbaceous plants, and receive a silver medal.

At the end of one of the tents Mr. H. Boller receives a bronze medal for a small but remarkable collection of *Cactuses*, *Agaves*, *Aloes*, &c., which are worthy of examination by admirers of the grotesque and curious in vegetation. Mr. Croucher, gardener, Sudbury House, Hammersmith, occupies the opposite end of the same tent with larger plants of the same nature from the celebrated collection of J. T. Peacock, Esq., for which a silver Banksian medal is awarded.

Messrs. Lane & Son, Great Berkhamstead, arrange large and gorgeous groups of *Rhododendrons*, also specimen *Ivies*, and receive a gold medal.

Messrs. Cutbush & Sons stage a group of New Holland plants—fresh, bright, floriferous, and altogether good, and are awarded a silver medal.

Messrs. James Carter & Co. contribute a large group of ornamental-foliaged and general decorative plants, including plants of considerable merit, especially a splendid specimen of *Adiantum farleyense*. A silver Banksian medal is awarded for the group.

Extensively and successfully as he has exhibited in the classes Mr. B. S. Williams has yet been able to arrange a miscellaneous group of great merit, and for which a silver Banksian medal was awarded, and Messrs. Hooper & Co. contribute a fine collection of *Echeverias*, *Ixias*, &c.

CUT FLOWERS.—Messrs. Barr & Sugden exhibit a varied, rich, and extensive collection of *Irises* interspersed with Ferns. The rich colours of these hardy flowers almost rival the *Orchids*, and are much admired by the numerous visitors. A silver Flora medal is deservedly awarded. An extensive collection of *Ixias* is exhibited by Messrs. James Veitch & Sons, and attract much attention owing to their very varied and remarkable colours. They are very fine indeed, and are awarded a bronze Banksian medal. From Messrs. Downie & Laird of Edinburgh come an exquisite collection of one hundred *Pansies*, all seedlings of 1877 and 1878, which are very beautiful and much admired. A silver Banksian medal is awarded for them. Mr. Ware, Tottenham, is highly commended for a collection of *Pyrethrums*, representing twelve splendid varieties. From Mr. John Waterer, Knap Hill, come a miscellaneous collection of cut blooms of hardy *Azaleas* in bright and varied colours. Mr. George, Putney Heath, sends three boxes of *Pelargonium* blooms all of his own raising. One box contains eight varieties of Hybrid Ivy-leaved varieties and is highly commended. From Mr. Cannell, Swanley come collections of twenty-four varieties of single *Geraniums*, twenty-four varieties of double, a box each of *Salmon*, *Striped*, and *White Vesuvius*; also a box of *Mimulus* seedlings. These collections produce a brilliant and striking effect. They were highly commended. Messrs. E. G. Henderson & Sons exhibit cut blooms of *Mimulus* of remarkable beauty.

DECORATIONS.—Mrs. J. H. Cousins, Southport, is worthily awarded a gold medal for a collection of skeleton leaves and flowers of remarkable beauty, and a silver medal is awarded to Messrs. Dick Radclyffe & Co. for a rockwork fernery. Messrs. Mortlock & Co. and Mr. Aldous exhibit table decorations.

CERTIFICATES.—First-class certificates were awarded to Mr.

Bull for *Kentia rupicola*, an elegant Fern: and for *Dracaena Bijou*, a gem of the first water, a distinct and brilliant novelty; leaves not more than 4 inches long, bronze, margined scarlet. It is very dwarf, compact, and attractive. Mr. W. Fisher, gardener to T. Williams, Esq., Woodlands, Nightingale Lane, Balham, has a similar award for *Gloxinia Berkshirei*, fine white throat, base of lobes lilac shading to bluish pink; large and fine. Mr. Turner, Slough, was awarded a first-class certificate for *Show Pelargonium Fortitude*; lower petals rich salmon, upper petals velvety maroon, white centre, smooth, and of great substance; very fine.

FRUIT.

The display of this is tolerably extensive, and, considering the earliness of the season, the quality is generally very good indeed, some of the dishes being of great excellence.

In the class for a collection of eight distinct kinds of fruit there are only two exhibitors. Mr. J. T. Miles, gardener to Lord Carington, Wycombe Abbey, High Wycombe, wins the first prize, having very good-coloured Black Hamburg and Foster's Seedling Grapes, President Strawberries, Queen Pine, Black Circassian Cherries very fine, Brown Turkey Figs, Stirling Castle Peaches, and Elruge Nectarines, all good. Mr. Thomas Bannerman, gardener to Lord Bagot, Blithfield, Rugeley, is awarded the second prize; his collection contains a very fine Trentham Hybrid Melon and excellent Grapes; indeed all the dishes are very good.

Pines.—The first prize for two Pines is awarded Her Majesty the Queen (Mr. Jones, gardener) for excellent examples of Smooth Cayenne. The second prize falls to Mr. T. Rutland, gardener to His Grace the Duke of Richmond and Gordon; Mr. Rutland is also awarded the first prize for one Pine Apple—Smooth Cayenne.

Grapes.—Nine collections of Black Hamburg Grapes are staged, Mr. Thomas Bannerman winning the first prize; Mr. Edwards, gardener to Mrs. Tristram, Fowley, Liphook, Hants, the second; and Mr. A. Jamieson, gardener to Earl of Crawford and Balcarres, Haigh Hall, Wigan, the third. The bunches are of medium size and excellent shape, berries very fine and of good colour. For two bunches of white Grapes there are ten exhibitors, and Mr. Edwards, Mr. Bannerman, and Mr. R. Sowerby, gardener to the Earl of Macclesfield, Shirburn Castle, Oxon, are first, second, and third respectively for excellent produce, especially the first-prize collection.

Peaches and Nectarines.—Mr. James Fry, gardener to J. L. Baker, Esq., Haydon Hall, Eastcote, Pinner, is placed first for six Peaches with Grosse Mignonne; Mr. C. Maher, gardener to C. Allhusen, Esq., Stoke Court, second with Crawford's Early; and Mr. J. Horwood, gardener to J. L. Lovibond, Esq., Beckenham, third with Princess of Wales. Nectarines.—Mr. J. Horwood is here placed first with highly coloured Elruge Nectarines; Mr. Sowerby second with the same variety; and Mr. J. G. Seymour, gardener to W. R. Wynch, Esq., Hatfield, third with Pitmaston Orange.

Cherries.—Only one collection of two dishes of Cherries is staged; they come from Her Majesty the Queen and are worthily awarded the first prize. May Duke and Bigarreau are the varieties.

Strawberries.—These are admirably represented. Mr. J. Worthing, gardener to A. Moss, Esq., Chadwell Heath, Essex, is placed first for three dishes, distinct; and Mr. Norman, gardener to the Marquis of Salisbury, Hatfield House, first for one dish of President; the second prize being awarded to Mr. Neighbour, gardener to G. Wythes, Esq., Bickley Park, Kent, with Sir Charles Napier; and the third prize to Mr. J. Bolton, gardener to W. Spottiswoode, Esq., Coombe Bank, Sevenoaks, for British Queen. All excellent examples. Thirty varieties of Strawberries in pots were sent from the Society's garden at Chiswick.

Melons.—These are represented by thirteen fruits. The first prize is awarded to Mr. John Clutton, The Gardens, Aston-Rowant House, Tetworth, for a very fine netted fruit of Gilbert's Victory of Bath; the second prize going to Mr. Miles for a small fruit of Victory of Bath. The third prize is awarded to Mr. W. Pepper, The Lodge, Bromley Common, Kent, for a scarlet-fleshed variety named Sutton's Hero of Bath.

Thirty-six dishes of Apples come from Her Majesty the Queen, and for the season of the year are in most excellent preservation, the generality of them being almost as fresh as when gathered. This collection is highly commended.

VEGETABLES.

These are both extensively and well exhibited, Mr. Miles winning first honours in the collection of ten varieties with very large Asparagus, excellent Tomatoes, well-filled Little Gem Peas, Erfurt Cauliflowers, Porter's Excelsior Potatoes, Tender-and-True Cucumbers, Early White Naples Onion, Fulmer's Early Forcing French Beans, Globe Artichokes, and very fine Horn Carrots. Mr. W. Igoulden, gardener to R. B. W. Baker, Esq., Orsett Hall, is a close second, having the finest Excelsior Tomatoes and William I. Peas in the Show. Mr. W. G. Pragnell, gardener to G. W. Digby, Esq., Sherburn Castle, Dorset, is third.

IMPLEMENTS.—Amongst the implements we noticed "Invir-

cible" lawn mowers (Edwards' patent), exhibited by Mr. Crowley, which have won nearly twenty medals; "President" lawn mowers exhibited by McKenzie & Sons, an American implement which has also won many important prizes; also the "Automaton" lawn mower by Ransoms, Sims, & Head. All of these implements worked smoothly and did their work excellently. Messrs. Smeaton and Co. exhibit their "Surprise" tubular boiler; and Messrs. Hooper & Co. Von Levetzow's self-watering flower pot.

The arrangement of an exhibition of such magnitude is no easy task. The work has been well done, especially in the large marquee, where one collection of plants appears to enhance the beauty of the other. True taste was exercised by Messrs. Veitch in arranging the central group—the key to the whole position—in a manner totally dissimilar from all other collections. With large Roses on the one hand and imposing fine-foliaged plants on the other the central gems shone the brighter, while the surrounding groups were rendered the more imposing by the lightness and the brightness of the central point. This is as it should be, for the simple reason that everybody are the gainers. Grouping the great Roses at the opposite ends of the tent was manifestly the right plan, and not less advantageous was the placing of the competitive "effect" groups of Messrs. Wills and Aldous in juxtaposition; indeed, it is not too much to say that Mr. Barron never arranged the large enclosure more tastefully, correctly, and effectively.

The Exhibition continues open until Friday evening, and we urge all who are able to do so to inspect it, for it may be long before they have an opportunity of looking on the like again.

NOTES AND GLEANINGS.

At the last general meeting of the ROYAL HORTICULTURAL SOCIETY the following candidates were duly elected Fellows of the Society—viz., Captain W. de W. Abney, R.E., Mrs. Gough Arbuthnot, Rev. W. M. Banks, W. Fulford Brown, Lieut.-Col. Henry Thomas Butler, Right Hon. Sir Henry Cotton, John Foy, W. H. Holroyd, T. T. Lawden, William Lee, Mrs. Loch, Mrs. J. Fletcher Moulton, William H. Parry Okeden, Admiral Right Hon. Lord Clarence Paget, K.C.B., Joseph Rowlands, H. R. Sperling, David Syme, Acton Tindal, A. P. Vaughan, and G. C. Wylie. Guinea Members admitted—A. D. Mackay and J. H. Bainbridge.

—THE unique collection of RHODODENDRONS in Mr. McIntosh's garden at Duneevan has been referred to in previous seasons. This year the bloom has not been quite so profuse as usual owing to the cool moist season last year, which induced the shrubs to grow luxuriantly. Many of the trusses are, or rather were a week ago, in great magnificence, all the newer varieties being in superb condition. This is the most complete private collection of these gorgeous shrubs with which we are acquainted, and certainly nowhere can the beauty of Rhododendrons be seen to better advantage, the shrubs being arranged in bold groups on an undulating lawn at the foot of one of Nature's imposing terraces; their brilliant masses of colour relieved by handsome Conifers produce a remarkably rich and picturesque effect. Amongst the Rhododendrons the American and Ghent Azaleas are extremely beautiful. The collection is a very choice one, but only one plant can now be described; it is a seedling raised by Mr. McIntosh several years ago, and now almost entirely fills a circular bed, there being only a small fringe of Rhododendrons at the margin, and the plants composing it must be removed. This Azalea is now about 5 to 6 feet high and the same in diameter, and is one glowing mass of orange, crimson, and scarlet. We never saw a shrub more floriferous nor a lawn ornament more imposing than this remarkable specimen. Some other features of this admirably kept garden will be alluded to, and a reference to the extraordinary manner in which birds are domesticated will be found at other end of this Journal.

—AN extremely fine display of CALCEOLARIAS has for some time past been provided in Messrs. Suttons' nursery at Reading. The flowers are now fading, but they yet afford sufficient evidence of the excellence of the strain both as regards general superiority of the form of the flowers and the great number of varieties. The plants are also very fine, some of them being quite as large as those staged at the London exhibitions. The plants are grown wholly for producing seed, and not one inferior variety could be seen in a large houseful of plants. Another large house is quite filled with *Gloxinias*, to which the firm is giving special attention. Many splendid varieties are noticeable, the foliage of some reflexing and almost hiding the pots. Another structure is filled with tuberous Begonias, and several others with Cyclamens. All the

houses are in excellent order, as are the grounds: in the latter a fine collection of double *Pyrethrums* will shortly be in great beauty. The immense seed stores, offices, &c., of the great firm are simply wonderful by their extent and completeness; and yet they are not large enough for the world-wide trade, and additions and alterations are being made to meet the exigencies of this gigantic business.

CRYSTAL PALACE SHOW.

MAY 24TH AND 25TH.

ALTHOUGH no third prizes were offered in any of the classes the Show was, owing to its having been well timed for occurring between the two great gatherings at Regent's Park and Kensington, a tolerably extensive one and on the whole good—some of the classes excellent. When Messrs. Turner and Paul exhibit Roses in pots, and both of them are in good "form," the public have a treat of no ordinary merit. Both of those celebrated cultivators exhibited magnificent specimens in the class for nine plants, and the prizes were awarded in the order of their names. In the class for eighteen plants in pots not exceeding 12 inches in diameter Mr. Turner was the only exhibitor, and was awarded the premier prize for a collection which we never saw equalled. Most of the plants were in 10-inch pots, the plants averaging 3 feet in diameter, symmetrical half-globes, each plant carrying thirty to forty blooms of splendid quality, and the foliage was as fine as the blooms. Some of the comparatively new varieties were included in the collection, such as *Royal Standard*, *Oxonian*, *Rev. J. B. M. Camm*, *Beauty of Waltham*, and *Madame Lacharme*, all of which were in excellent order, and the blooms of Paul Neyron were equal to the finest we have seen under outdoor cultivation. The amateurs' Roses were not so good as we have previously seen them. The prizes for six plants were awarded to Mr. Moorman, gardener to the Misses Christy, Coombe Bank, Kingston-on-Thames, and Mr. Penfold, gardener to Rev. Canon Bridges, Beddington House, Croydon.

Azaleas were a prominent feature of the Show. Mr. Ratty, gardener to R. Thornton, Esq., The Hoo, Sydenham Hill, always exhibits splendidly at the Palace. He was, however, this year beaten in the great class of nine plants; and Mr. Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, may be proud of his achievement. The plants were of uniform size—obtusely pyramidal 6 feet high and 4 feet in diameter at the base, and were densely covered with fine blooms. *Duchesse Adelaide de Nassau*, rosy crimson, was in magnificent condition, and Duke de Nassau had noble flowers. Amongst the lights *Iveryana*, white, and *Criterion*, flesh suffused with lilac, were the most striking. Mr. Ratty's plants were more irregular in size. *Chelsoni* was 7 feet high by 6 feet in diameter, and Mrs. Fay was 8 feet by 6, while others were much smaller. The best white was *Madame Cannart d'Hamale*, and the best of the darker varieties was *Grand Crimson*. This remarkably fine Azalea was raised by Messrs. Jacksons of Kingston, and as a crimson we know of none to surpass it. In the remaining classes for six, three, and eighteen plants Mr. Ratty secured the whole of the first prizes, Mr. Child following rather closely.

Ornamental-foliaged plants of great excellence were staged by Mr. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley; Mr. Tudgey, gardener to J. F. Greswolde Williams, Esq., Henwick Grange, Worcester; and Mr. Penfold, gardener to Rev. Canon Bridges, who were awarded the prizes for twelve plants in the order of their names. Mr. Warren's plants were such as are rarely seen for size and quality combined. They comprised *Latania borbonica*, *Phœnicophorium seychellarum*, *Verschaffeltia splendida*, *Areca sapida*, *Crotons volutum*, *interruptum*, and *variegatum*; *Cycas circinalis* and *revoluta*, *Encephalartos villosus*, and *Dasyliro glauca*. Mr. Tudgey staged smaller but good plants, and exceedingly close in merit were the specimens staged by Mr. Penfold. In this collection *Spathiphyllum pictum* was bold and imposing, as was also the fine *Palm Hyophorbe Verschaffelti*. Ferns were admirably exhibited by Messrs. Tudgey and Penfold, who were placed first and second respectively in the class for twelve plants with collections of nearly equal merit. Many of the plants were large and all of them in excellent health, some in Mr. Penfold's group being remarkable for their rich dark green colour indicative of superior cultivation.

Stove and greenhouse plants were well represented. In the nurserymen's class for nine plants Messrs. Jackson & Sons won first honours with a capital collection, followed by Mr. J. Peed, Roupell Park Nurseries, Lower Norwood, who staged smaller but very good specimens. In the corresponding amateurs' class the awards were made in the following order—First Mr. Tudgey; second Mr. Chapman, gardener to J. Spode, Esq., Hawkesyard Park, Rugeley; third Mr. B. Peed, gardener to Mrs. Treadwell, St. John's Lodge, Lower Norwood. In the class for six plants Mr. Chapman was placed first and Mr. Peed second. The competition in this class was undoubtedly rather close, and we thought the first-prize collection nearly as good as the second—there is no misprint here. In the class for eight *Ericas* Mr. Peed secured first honours with symmetrical well-flowered specimens, especially

E. exquisita, *E. eximea superba*, and *E. obbata*. Mr. Tudgey had *E. ventricosa coccinea* and *E. tricolor Wilsoni* in superior condition. *Orchids* were not particularly imposing. In the nurserymen's class for ten plants the prizes went in the following order—First Mr. B. S. Williams; second Mr. Henry James, Castle Nursery, Lower Norwood; and third Messrs. Jackson & Sons. In the amateurs' class for eight plants Mr. Child was first and Mr. B. Peed second. Mr. Williams' collection was by far the finest in these classes.

Mr. Turner, Slough, and Mr. James, gardener to W. F. Watson, Esq., Redlees, Isleworth, were the only exhibitors of *Pelargoniums*, and were deservedly awarded first prizes. Mr. Turner's show varieties and Mr. James's fancies well sustained the fame of the cultivators—more than that need not be said. Mr. Parker was the only exhibitor in the class for Alpine and herbaceous plants. The gem of the collection was *Spirea arnica*, the pure white feathery plumes of which were quite charming.

The miscellaneous collections contributed greatly to the value and effectiveness of the Exhibition, and extra prizes were awarded to Mr. F. W. Griffin, gardener to J. Willcocks, Esq., Eliot Bank, Forest Hill, for *Calceolarias* and *Gloxinias*; to Mr. Henry Hooper, Vine Nursery, Widcomb Hill, Bath, for *Roses* and *Pansies*, the latter very fine and in rich and striking colours; to Messrs. W. and A. Smith, The Nurseries, West Dulwich, the decorative *Pelargoniums* in this collection being very floriferous; to Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, for a rich and varied collection of new and rare plants; to Messrs. John Laing & Co., Stanstead Park, Forest Hill, for two excellent groups of ornamental plants, than which none in the Palace were finer; to Messrs. Rollisson & Son, The Nurseries, Tooting, and Messrs. Osborn & Sons, Fulham, for superior collections of fine-foliaged and flowering plants; to Mr. James Ford, gardener to J. G. Megaw, Esq., Church Road Upper Norwood; to Messrs. Carter, Dunnet, & Beale, High Holborn, and Perry Hill Nursery, Sydenham, and Mr. John Wills, Melbourne Nursery, Anerley, for collections of plants; and to Mr. J. W. Moorman, gardener to the Misses Christy, Coombe Bank, Kingston-on-Thames, for an excellent collection of cut *Roses*. One of Messrs. Rollisson's groups consisted of an unique collection of *Succulents*—small plants in pots plunged in boxes surfaced with pounded bricks, a most appropriate mode of exhibiting plants of this nature. In Mr. Wills's collection *Dracenas*, *Gloxinias*, and *Yucca filamentosa variegata* were very fine, and in the collection of Messrs. Carter *Casuarina sumatrana* was particularly elegant, and *Coleus Empress of India* was very rich, and *C. Knatchbull-Hugessen* finely marbled. An extensive and superior collection of plants was staged by Mr. Thomson, the able garden Superintendent.

Certificates were awarded to Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, for *Adiantum neo-guineense*, *Calyptronoma Swartzii*, *Macrozamia crenata*, *Ptychosperma rupicola*, *Cycas media*, and *Dracenas Bauseii*, *Berkeleyi*, and *Fredericki*; *Wallichia zebrina*, and *Microlepia hirta cristata*; to Messrs. John Laing & Co., Stanstead Park, Forest Hill, for *Begonias President Burrelle*, fine double scarlet; *Carnicolor*, flesh tinted salmon, dwarf and fine; *Baron L. Leguay*, rosy pink, suffused salmon distinct and attractive; and for *Gloxinia Madame de Stael*, ground white, densely spotted with rose, rose margin, exterior of tube white very chaste, and attractive; also to Mr. Charles Turner, The Royal Nurseries, Slough, for *Rose Penelope Mayo*, which may be described as an improved *Marie Baumann*—that is, having the form and foliage of that fine Rose with a deeper colour.

The plants were arranged in the central transept and north and south aisles of the building, and were displayed to the best advantage on sloping stages devised by Mr. Thomson. These stages were about 18 inches high in front and 3½ feet at the back, and about 8 feet wide. Stages formed in this manner are a great convenience to exhibitors, as scarcely any blocks are required for tilting the plants. Now that the plan is seen to answer its purpose so admirably, and is so simple in its nature, that the wonder is it was not thought of and carried out before.

REVIEW.

Catalogue of Plants under Cultivation in the Government Botanic Garden, Adelaide, South Australia. By RICHARD SCHOMBURGK, Dr. Phil., Director. Adelaide, 1878.

WE have to thank Dr. Schomburgk for a copy of this catalogue, which has just come to hand, and which testifies to the marvellous progress that is taking place in our colonial botanic gardens, and certainly in that of Adelaide. The first edition of this catalogue appeared only seven years ago, and it has already become so obsolete as to already require a new one. In the former there were recorded six thousand species of plants, and in this there is an addition of 2500, making 8500 species in all. This new edition is in every respect an improvement on the first, and the most important point in which it differs is in its being arranged on the natural system, by which it serves the double purpose of being educational as

well as a catalogue. We congratulate Dr. Schomburgk on the remarkably fine collection he has got together.

The catalogue is profusely illustrated with woodcuts of views in the botanic garden, which are evidently taken from photographs, and therefore truthful. We reproduce one of these views (fig. 62), and we cannot but feel that our South Australian brethren ought to be proud, as we have no doubt they are, of their botanic gardens. The picturesque effects produced by the skilful and masterly style in which the grounds are laid out are equal to anything we have seen of a similar description.

In the preface Dr. Schomburgk has printed a very interesting account of the climate of the colony, a part of which we shall now give so as to convey to our readers and to intending emigrants some idea of the country. We must suggest to the author a revision of the list of "Authorities Quoted," in which he notes those who are dead. We are happy to say Robert Fortune is still in the flesh, and hope he may long remain so,

so is De Candolle; but there are many dead who are represented as being alive, such as Andrews, Arnott, Backhouse, the brothers Cunningham, Curtis, Henslow, Hudson, A. B. Lambert, J. T. Mackay, and many others; whilst among the foreign botanists who are said to be living we have the names Palisot de Beauvois, Brongniart, Cels, Delile, Haller, &c.

The following extract from the preface to the catalogue will be read with interest:—"Our summer season includes the months of December, January, and February, when the temperature on the plains frequently exceeds 100° in the shade, and 130° to 140° in the sun. In 1876 the thermometer registered in December $114^{\circ} 2'$ in the shade, and $162^{\circ} 6'$ in the sun. This degree of heat has only been exceeded on two former occasions—viz., in 1865, when the thermometer registered on the 9th January $116^{\circ} 3'$, and the 14th January, 1862, when the reading was 115° in the shade and 165° in the sun. Such a temperature produces very injurious effects on the

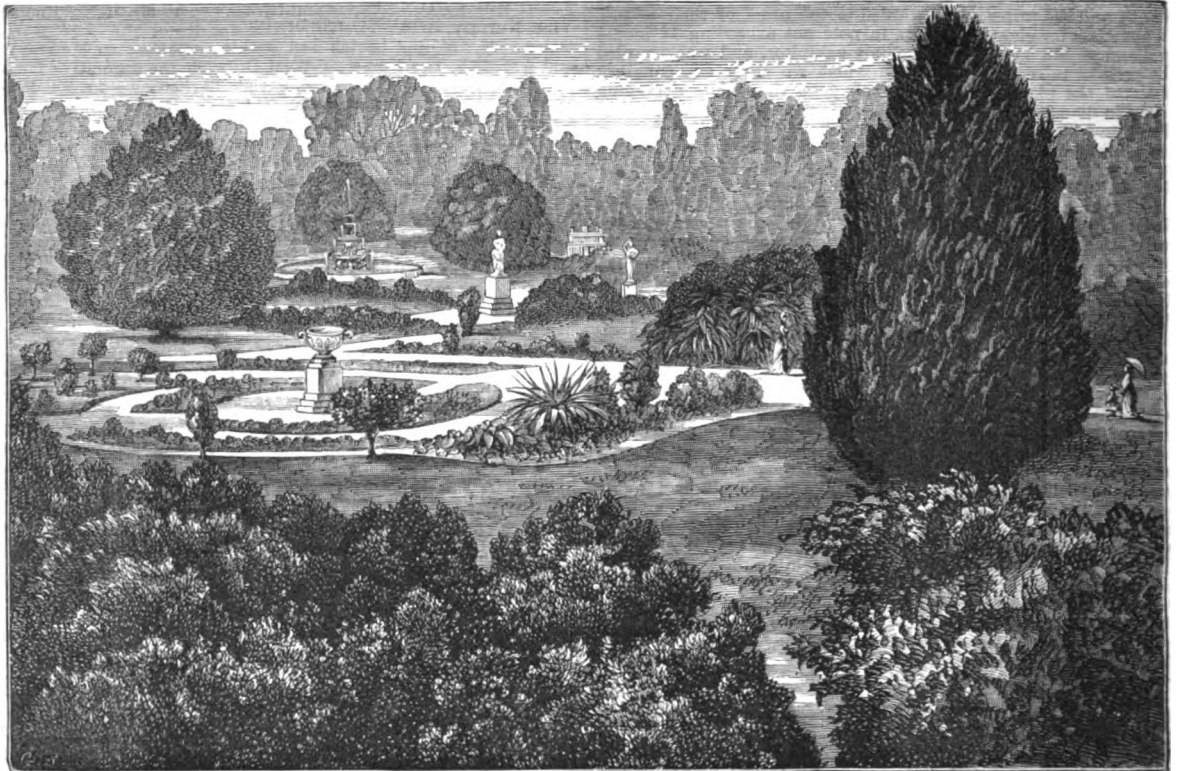


Fig. 62.—VIEW IN ADELAIDE BOTANIC GARDEN.

introduced plants, especially those from cooler climes, and leaves even injurious traces on the native vegetation.

"During the blowing of a hot wind the thermometer and the wet-bulb thermometer show often a difference of 30° to 40° , and it is that which enables persons to bear the heat of our summer and carry out their usual pursuits in the field or elsewhere, which in a tropical climate would be impossible.

"The changes of temperature during the summer are often very sudden, so that in a short time the thermometer falls from 90° or 100° to 60° or 70° .

"Our summer months are characterised by great heat, hot winds, and dryness. Often not a drop of rain falls for eight or ten weeks, and it is during this time that not only the indigenous but the acclimatised vegetation suffers materially. The ground becomes so hot and cracks, that even the occurrence of a heavy fall of rain serves only to clear the leaves from dust, as it evaporates as quickly as it falls.

"The autumn season includes in Australia the months of March, April, and May, and is one of our genial and beautiful parts of the year. The temperature falls rapidly, only reaching 70° to 90° in the shade, the mean being $64^{\circ} 6'$, and in the month of May it is only $58^{\circ} 2'$. The northern winds become cooler, the solar radiation is considerably reduced, and heavy dews begin to fall at night. The indigenous vegetation which

has suffered through the summer awakes to new life, and trees and shrubs put forth fresh growth, while the leaves of the European deciduous trees and shrubs get their autumnal tints and drop.

"June, July, and August constitute our winter, our rainy season, which is usually marked by frequent rain and strong winds; but it happens also often that we have to content ourselves with remarkable dry winters, the mean temperature during the three months being 54° to $55^{\circ} 7'$. Heavy hoar frosts and frosts appear often during night. The lowest temperature registered in 1876 and '77 during the month of July has been 30° and 28° , the lowest experienced in the plains near Adelaide. Such heavy frosts have most disastrous effects upon the tropical and subtropical plants in the gardens.

"The spring season, the most genial and most beautiful in South Australia, not surpassed in any other part of the world, includes the months of September, October and November, the mean temperature during the first two months being 60° to 70° .

"At this time of the year the gardens are in their best floral beauty—trees, shrubs, perennials, annuals, emulate each other in regard to their flowers, which are of such size, richness in colour, and perfection as a northern gardener can scarcely imagine. But early-appearing hot winds in November destroy those floral beauties in the course of a few hours.

"The average fall of rain during the year in the plains of Adelaide is 19 to 21 inches, but the distribution is unequal, even on plains not far apart, each showing a great difference in the rainfall.

"In the Mount Lofty Ranges, about eight miles distant from Adelaide, the average of rainfall is 40.677 inches.

"According to our indefatigable Government Astronomer, Charles Todd, C.M.G., the lowest rainfalls have been in 1850, when only 11.644 inches fell; in 1859, 11.647 inches; in 1857, 12.650 inches; in 1854, 13.437 inches, and in 1871, 14.926 inches. The highest fall near Adelaide was in 1875, when 31.455 inches fell.

"This climatic sketch refers only to the plains around Adelaide. In the southern parts and in the hills the temperature is much cooler, and the rainfall, as already mentioned, much heavier.

"From the foregoing it can be imagined that not all the plants from other countries will thrive with us.

"The Alpine and tropical ones suffer not only from our dry atmosphere, but the latter also from the cold during the winter months. In the hills the Alpine plants and those of other cool countries grow exceedingly well, but the tropical plants are destroyed by the frosts, which in such localities are even severer than on the plains."

SEEDLING AMARYLLISES.

THE reading of "AMATEUR'S" letter, which appeared in your Journal under the heading "A Plea for Amaryllises," brings before my mind's eye the brilliant and gorgeous display of these flowers which I saw at Chatsworth the other day, where they are very extensively and successfully grown. In several departments of Chatsworth gardens the Amaryllises are at the present time charmingly attractive, being well grown and full of flower. "AMATEUR" talks of the Amaryllis going into disrepute and disuse owing to the difficulty of raising good seedlings, and then says, "that for every good variety raised hundreds of worthless seedlings have been produced and, unfortunately, not destroyed, and these form the bulk of the bulbs offered for sale," &c.

Mr. Speed has been trying to raise good Amaryllises from seed, and has been very successful with crossing *Ackmanii pulchella* and *reginæ*. I did not ask which of these two was the seed-bearing plant, but by crossing these two he has raised a great number of beautiful seedlings, and not a bad or worthless one amongst them. By perseverance he has struck on the right thing at last, for he has now seedlings of his own unsurpassed for beauty and distinctness of colour. The rich crimson and pure white of the Chatsworth seedling Amaryllises strike one from every point of view. Mr. Speed was, like other people, unsuccessful with other sorts. He crossed *Johnsonii* with *Goviana*, and from two hundred bulbs raised from seed of this crossing not one was worth keeping. He is now on the right track, and judging from the number of seed pods I saw ripening on some of his plants I guess that year after year we shall have a greater display of Amaryllises in the gardens of Chatsworth.—A. PETTIGREW.

ROYAL BOTANIC SOCIETY'S FLOWER SHOW SCHEDULE.

I ENCLOSE to you a schedule of the Royal Botanic Show on the 22nd. In Class 23, twelve *Gloxinias*, I was an exhibitor, and was disqualified because I had two of one sort. You will see that the schedule does not specify twelve distinct. I had not overlooked this; I had looked at the spirit of the schedule. In Class 7 the word "distinct" is used; in Class 8 it is used again, "ditto" not even being allowed to serve. In Class 18, 8-inch pots, and in Classes 19 and 20 the figure and word are used; ditto, or a number of dots, are not to be trusted, so explicit were the framers of the schedule. I am aware that to show two of a kind is a point of weakness, and of course taken advantage of in close competition; but as our plants were so far superior I felt no hesitation on that point. It is singular that everyone I came in contact with read the schedule as I did. Even my fellow exhibitor was candid enough to admit it. I leave to you and others to judge who is to blame. The Judges, perhaps, gleaned what was the meaning of the framers of the schedule, and they acted accordingly. It is no interest of theirs who the prize should be awarded to. I fear my only recompense is the satisfaction that I exhibited twelve as good plants for the size of the pots as any that have been shown

lately.—W. P. ROBERTS, *Gardener to W. Terry, Esq., Peterborough House, Fulham.*

[Your plants ought not, according to the schedule, to have been disqualified.—EDS.]

ALSTRÖMERIA CHILENSIS.

"G. B., *Birmingham*," in recommending the culture of *Alströmerias*, especially for affording cut flowers—a recommendation which we endorse—requests information respecting the Chilean *Alströmeria*, its origin and culture. Mr. Thompson of Ipswich believes it was raised by M. Van Houtte from seeds imported from Chili; but the species appear to hybridise so freely that this circumstance is not altogether conclusive of its distinct character. The flowers vary considerably in their tint, some of the specimens producing blossoms much darker than others.

Alströmeria chilensis is of the easiest cultivation, requiring only to be planted in moderately rich soil of a sandy texture, where it will flourish for years with but little attention. It



Fig. 63.—*Alströmeria chilensis*.

grows about 2 feet high, and the roots will when two or three years old produce several stems, each terminated by an umbel of from ten to twenty blossoms, which expand in July and August.

The plant will not succeed in stiff loam and therefore, when the soil of the borders is of this character, an artificial compost must be prepared of sandy loam, decayed manure, and leaf soil or peat. It will be advisable to plant the roots at a depth of at least 4 or 6 inches; they will then be not only less liable to injury from severe frost, but will also suffer less from drought in summer. In dry weather during their growth they will require a frequent supply of water, and when in flower the stems, being somewhat feeble, must be supported by neat sticks. In shallow hot soils neither this nor any of the species succeed well.

READING SHOW.

WHEN a worthy organisation answers its purpose it deserves encouragement and support. The Reading Horticultural Society has been established many years, and many exhibitions have been held under its auspices. The last was on the 23rd inst., and it is evident both by its extent and quality that the district of Reading contains excellent cultivators, and that the Society has stimulated them to put forth their strength in producing exhibitions of which any town may be proud. By the exercise of economy and general good management the Committee are able to provide some good prizes; but we should be glad if an additional number of subscribers should enable them to offer more, as we observe that in nearly half the classes only two prizes were provided at the Show in question, and that many meritorious exhibits had to

go unrecognised and their growers unrewarded. A royal county and thrifty and prosperous town ought not to permit this.

The site of the Show is an appropriate one. Its approach is through a garden tolerably extensive, diverse in its attractions, and enjoyable. The Forbury Gardens, belonging to the Corporation of Reading, and to which the inhabitants of the town have access, are well kept and managed by Mr. Phippen the local nurseryman. In these gardens the ancient and modern are represented. Ancient Elms crown the large central mound, and old-fashioned herbaceous plants crowd some of the borders, while modern spring bedding at one season and carpet bedding at another are well carried out in the beds. Shrub groups are banded with Iberises, Japanese Honeysuckles, *Stachys lanata*, and such-like permanent yet effective plants. There are, besides the scrolls of flowers well disposed on the extensive lawn, gracefully curved walks, shady nooks, Ivy-clad banks, rocky promontories, and a rosery, the Rose beds being edged with a singularly cheerful hardy plant more bright than the Golden Feather—namely, the Golden Marjoram. At the extremity of the gardens are the Abbey ruins, and it is under the shade of the venerable and massive Ivy-mantled walls that the Mayor permits the Society to arrange the exhibitions. For these permanent provision has been made, and made well. The centre is a large rectangular depression, to which sloping walks lead from the four corners. From this centre terraced banks have been formed for accommodating the plants. At the top of these a broad walk conducts round the enclosure, having on its opposite side—the sides of the tent—other grassed banks, the boundary. When arranged the appearance of the Show was that of a grand flowery dell. It was one of the best and most beautiful local displays that we have seen for a long time.

In noticing the leading collections we must first refer to the Royal Horticultural Society's prize—the Veitch memorial medal with £5 for three stove and greenhouse plants in bloom, Orchids excluded. This prize was won by Mr. Parham, gardener to G. May, Esq., Reading, with a *Stephanotis* 4 feet by 8 in grand health and bloom, a similarly sized and equally good *Clerodendron*, and a central plant of *Lantana* "Le Grendier." We have never seen a *Lantana* so admirably grown and trained as was this splendid specimen. It was an obtuse pyramid about $4\frac{1}{2}$ feet in diameter at the base and $8\frac{1}{2}$ high, perfect in every part as a plant could well be, and covered with orange-scarlet flowers. As an exhibition plant this *Lantana* when thus grown is equal to any *Rondeletia*. Mr. Mearing, gardener to W. Whitley, Esq., Guildford, was a good second. His *Ixora Lobbi* was very fine, but the other plants were too closely tied.

In the class for twelve stove and greenhouse plants three excellent collections were arranged. Mr. Lees, gardener to Mrs. Marshall, The Wilderness, Reading, secured the premier position with two *Azaleas* 7 feet by 4, *Clerodendron* and *Allamanda* nearly equally large, *Stephanotis*, *Bougainvillea*, *Pimelea*, and *Erica ventricosa grandiflora*—all good; *Aphelaxis*, *Erica eximia superba*, and *Franciscia calycina major*, smaller. The two last-named plants were in splendid condition, indeed just "pulled off" the prize from Mr. Tudgey, gardener to J. F. Greswolde Williams, Esq., Henwick Grange, Worcester, whose collection contained a vigorous plant with ten spathes of *Anthurium album*. Third honours were won by Mr. Mearing; the plants were generally over-tied. The gem of the collection was a plant $2\frac{1}{2}$ feet in diameter of *Lechenaultia biloba major*; it was much and deservedly admired. In the class for six plants Mr. Parham won the foremost place. A *Rhynchospermum* 4 feet by 8 was in fine condition, *Cactus superba* with forty gorgeous blooms, *Clerodendron*, *Bougainvillea*, *Anthurium Scherzerianum*, and *Erica Cavendishiana*, a small but admirable plant, comprised the collection. Mr. Pewsey, nurseryman, Pevensey, had the second prize. His *Hederoma*, *Erica Cavendishiana*, and *Aphelaxis* were excellent, but the remaining plants weak. These collections had an imposing effect, and the Judges, Messrs. Barron and Dean, were long in deciding on their merits. In the amateurs' class for four plants Mr. Higgs, gardener to Mrs. Crawshaw, Caversham Park, and Mr. Baskett, gardener to N. J. Palmer, Esq., were placed in the order named with creditable specimens. The first collection was composed of a *Rhynchospermum*, *Anthurium Scherzerianum*, *Stephanotis*, and *Aphelandra*. Orchids do not call for comment. Mr. Baskett was awarded the first prize for three very small but healthy plants, and for a single specimen also small. There were seven entries in the class for single specimen stove or greenhouse plants. Mr. Atkins, gardener to Col. Loyd Lindsay, Lockinge Park, Wantage, was first with a grand *Clerodendron* 5 feet by 4 and faultless; Mr. Tudgey was second, also with a *Clerodendron*; and Mr. Baskett third with *Pimelea mirabilis*, a fine plant, but old and flowers small. In the corresponding class for fine-foliated plants Mr. Atkins won with an excellent *Cocos Weddelliana* 7 feet high, with large and healthy fronds. Mr. Rose, gardener to C. Eyre, Esq., Welford Park, Newbury, was second with a good *Dasylirion*. Mr. Mearing for *Sarracenia flava* with thirty-five pitchers and Mr. Lees with *Cycas revoluta* were equal third.

Pelargoniums.—For nine plants Mr. Baskett was first and Mr. Ashby second with creditable specimens about 2 feet in diameter,

good in bloom and foliage. For four plants (amateurs) Mr. Ashby won with dwarf healthy grown plants. Mr. Higgs second. *Fancies*.—Mr. Miller, gardener to C. Ellis, Esq., Waltham Place, won first honours with plants $1\frac{1}{2}$ foot across; they were fresh, full, and very good. Mr. Baskett was second with small compact half-globes, and Mr. Ashby third with larger plants but irregular. Several of the *Pelargoniums* were not trained sufficiently low. *Fuchsias*.—For six plants Mr. Lees won with loose columnar examples, but foliage good and flowers fine. For four plants Mr. Mearing was first and Mr. Mayne, gardener to R. Large, Esq., second with stout healthy pyramids 4 to 5 feet high and 8 feet in basal diameter. *Gloxinias*.—A capital class. Mr. Baskett was first with good plants and varieties. Mr. Pile, gardener to J. J. Wheble, Esq., Bulmershe Place, second, also good, and Mr. Ross third with small plants of superior quality. Mr. Mearing exhibited the finest plants, but they were damaged, and Mr. Goddard, gardener to G. Marshall, Esq., Windlesham Hall, Bagshot, exhibited a collection grown from seed supplied by Messrs. Sutton & Sons; evidently an excellent strain. *Calceolarias*.—Mr. Mearing was first with dwarf well-grown plants in Mr. James's style; Mr. Mortimer, gardener to Major Storer, Sulhamstead, second with larger and taller examples; Mr. Baskett third with smaller plants, heads a foot across, dwarf, fresh, and of good quality—a very good class. *Roses in pots*.—Mr. Baskett, Mr. Mould, and Mr. Lees were placed in the order named in the class for six plants; and in that for four plants Mr. Lockie, gardener to Lord O. Fitzgerald, Oakley Court, Windsor, and Mr. Tranter, Upper Assenden, were awarded the prizes. The plants were naturally trained—that is, their shoots were not bent into "form," and each plant carried eight to twelve good blooms. They were useful decorative plants. Some other collections were staged, but they were very inferior. *Ericas*.—The plants generally were healthy, medium-sized, or 2 to 3 feet in diameter, well bloomed, and attractive. In the class for six plants Mr. Lees had the first place. *E. depressa multiflora* and *eximia superba* were very fine indeed, *Cavendishiana* and *tricolor superba* were larger, also good. Mr. Mould was second with larger plants. *E. ventricosa magnifica* was in capital order in this collection. *Azaleas*.—In the class for nine plants Mr. Higgs was placed first with pyramids 5 feet high, and Mr. Lees second with healthier but not such well-bloomed examples. In the class for four plants Mr. Miller was first with attractive standards; stems 3 feet high, heads a foot in diameter, healthy, and well bloomed. Mr. Parham was second with dwarf floriferous plants in 7-inch pots.

Fine-foliated Plants.—Although some good specimens were exhibited yet the collections were not generally so meritorious as the flowering plants. In the class for nine plants Mr. Higgs had the chief prize for a good collection, which included admirable examples of *Alocasias metallica*, Lowii (very fine), and *Veitchii*, *Palma*, *Trec Ferns*, and *Cordylines*. Mr. Tudgey was second. *Kentia australis*, *Areca Verschaffeltii*, *Croton Johannis*, and *Cycas revoluta* were good in this collection. Mr. Elliott had third honours. In the class for four plants Mr. Atkins won the chief place with *Cycas revoluta*, *Maranta Veitchii*, *Calathea zebrina*, and *Croton variegatus*. The plants were not so large as those in the other collections, but they were well worthy of their position. Mr. Lees was second; his *Pandanus Veitchii* was good, and *Croton Weismannii* exhibited by Mr. Mearing was in fine colour. The plants in some of the collections in this class were irregular in size and were deficient in freshness and brightness.

Table Plants.—There was great competition in this class. Mr. Ross was placed first with *Pandanus Veitchii*, *Dracena Cooperi*, *D. Guilfoylei*, *Croton Weismannii*, *Caladium argyrites*, and *Adiantum gracillimum*, all fresh and bright. Mr. Atkins was second with *Aralia Veitchii*, *Croton Weismannii*, *Cocos Weddelliana*, *Dracena nigra rubra*, *Dæmonorops fissus*, and *Adiantum gracillimum*; and Mr. Tudgey third with newer and choice plants but too small. All the plants were in 6-inch pots.

Ferns.—These were as a rule very meritorious. In the class for nine stove and greenhouse Ferns Mr. Mortimer, gardener to Major Storer, had the premier award for a really admirable group, comprising *Polypodium angustifolium*, *Adiantum concinnum latum*, *A. cardiocladum*, *Gymnogramma chrysophylla*, *Nephrolepis exaltatum*, *Leucostegia immersa*, *Lomaria gibba*, and two *Phlebodiums*. The plants were from 8 to 4 feet in diameter, and were very fresh and healthy. In the class for four plants Mr. Atkins was first with *Davallia Mooreana* and *Adiantum tenerum*, *trapeziforme*, and *farleyense*, about 8 feet in diameter and very good. Mr. Mearing was second with generally larger plants, and Mr. Parham third with small, compact, healthy specimens.

Lycopods.—These were splendid, especially the first-prize collection of Mr. Mearing. They were handsome cones 2 to 4 feet high. Mr. Higgs was second also with good examples.

Groups of Plants.—These constituted a prominent feature of the Show. For effective arrangement of plants in a space of 12 by 10 feet Mr. Parham won with comparative ease. The group was treated with great boldness and freedom. At the back were tall healthy plants of *Musa*, *Grevillea*, and an *Acacia*. In the centre of the space a good flowering specimen of *Cereus flagelliformis* grafted on the tall stem of a *Cactus* was very effective,

Two panels were formed of dwarf flowering plants, a rather tall Palm springing out of each, and a few sprays of Orchids. In the front were a capital *Erica Cavendishiana*, *Anthurium Scherzerianum*, *Caladium argyrites*, *Panicums*, *Gymnostachyums*, and Ferns. If this group had a fault it was rather too much crowded. Mr. Lees was second; his back plants—*Fuchsias*—were tall and good, the remainder were flowering plants and Ferns tastefully associated. *Scutellaria Mocciniana* was very effective in this group. Mr. Baskett had the third prize. The prizes for the smaller groups of 6 feet by 4, which were very bright and cheerful, were awarded to Mr. Elliott, gardener to T. Hibbert, Esq., Braywick Lodge, Maidenhead, and Mr. Burbidge, gardener to B. Symonds, Esq., in the order named.

Cut Flowers.—The collections of twelve and six bunches of stove and greenhouse cut flowers were very good indeed. Mr. Tegg, gardener to J. Walter, Esq., Bearwood, was first in the class for twelve, but the award did not give general satisfaction on account of *Primula japonica* and *Maréchal Niel* Roses being included. Messrs. Miller and Tudgey had the remaining prizes. In the six class Messrs. Ross and Mortimer were the prizewinners with excellent collections. Mr. Robins, gardener to E. Dyke Lee, Esq., Hartwell House, Aylesbury, won the first prize for twelve cut Roses, and Mr. Tranter the second. The blooms were fresh and good. Bridal and button-hole bouquets were very tastefully arranged. Messrs. Phippen and Robinson won the chief prizes for the former with a pleasing arrangement of *Stephanotis*, Lilies, and *Gauze Fern*. The latter were composed of small Rose buds and spray of *Forget-me-not* and other small flowers and Fern. Messrs. Ross, Atkins, and Phippen were the prizetakers. In the ladies' classes for vases of flowers, foliage and Grasses were very good, especially those decorated with wild flowers. Miss Phippen, Miss Cooper, and Miss Robinson appear adepts in this mode of decoration. A charmingly simple arrangement of Buttercups and Grasses by Miss Bourke, St. Giles' Vicarage, was highly commended by the Judges.

FRUIT.—Black Hamburgh Grapes from Mr. Ogston, gardener to the Countess of Yarborough, Titness Park, Sunninghill, and Mr. Ashby, who were awarded the prizes in the order named, were excellent and well coloured. White Grapes were also good. Mr. Ashby was first with Foster's Seedling, and Mr. Tegg second with Buckland Sweetwater. Strawberries were splendid. Mr. Bridgeman, gardener to T. Somers-Cocks, Esq., Thames Bank, Great Marlow, had the first prize for a dish of thirty fruits of Lord Napier weighing 22 ozs. Mr. Lockie was second with the same variety. For Peaches Mr. Tegg was first with Grosse Mignonne, very good; and Mr. Ashby second with Early Ascot.

VEGETABLES were very well exhibited, especially Potatoes and Cucumbers. Mr. Howe, gardener to Sir R. Sutton, Benham Park, Newbury, had the first prizes for both round and kidney Potatoes, the former with Rector of Woodstock, the latter with Lee's Hammersmith Kidney. In Cucumbers Mr. Mearning was first with Tender-and-True, and Mr. Lockie second with Duke of Connaught. Messrs. Sutton & Sons also offered prizes for Cucumbers, and brought out good competition. Mr. Lockie was first with Master-piece, 18 inches long and very regular; Mr. Higgs second with Model nearly 2 feet long; and Mr. Tomlin third with Duke of Connaught 18 inches in length. Mr. Spring, gardener to Lord Camoys, Stonor Park, Henley, was first in the class for a collection of vegetables, and Mr. Read second, both exhibiting capital produce. Other prizes were awarded, but we cannot enumerate them.

We congratulate the members of the Society and exhibitors on their excellent Show and on the arrangement of the several collections. The staging of exhibits, however, was not completed until twelve o'clock instead of ten—a grave fault, for when judging has to be done amidst a crowd of visitors no one can be surprised if mistakes occur, although, with one trifling exception above referred to, the awards appeared to give general satisfaction.

THE THRIPS.

FAMILIAR as this insect is to the majority of cultivators there are yet many, judging by the examples of Vine leaves sent to us infested with thrips, to whom the insect is not known nor understood. The accompanying figure and description will enable anyone to recognise it if it is infesting their Vines or plants, when no time must be lost in destroying it, for it is one of the worst pests that can gain a footing in our stoves and greenhouses. Our drawing represents this insect highly magnified, while the short line upon the scroll intimates its natural length.

The larvæ and pupæ are yellowish white, and the perfect insect is of a dull deep black, with the point, and sometimes the whole of the abdomen, of a rust colour; the wings are dirty white, the horns and legs yellowish, the extremity of the former black. It attacks plants by piercing the under side of the leaves, and one often sees at the tip of the tail a globule of blackish fluid which it soon deposits, and by innumerable

spots of this glutinous matter the pores of the leaves are stopped up, and large portions of the surface become blotched. During March the full-grown larvæ and pupæ, which are as large as the perfect insect, are found in groups feeding on the under side of the leaves, and at this time the recently hatched but perfect insect either lies close under the ribs or roves about in search of a mate (*Curtis*).

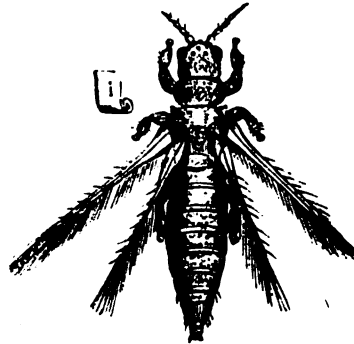


Fig. 64.—The Thrips.

Fumigating once a fortnight the houses in which it is present is a good means to adopt for eradicating it; and we have found that syringing the plants, &c., infested with a solution of soft soap and tobacco water is also effectual if applied once a week at a temperature of 100° or 120°. Prevention, however, is better than cure, and if the plants are kept healthy by due ventilation and abundance of moisture both in the air and soil, this insect may be usually banished.

SUBTROPICAL GARDENING FOR AMATEURS.

If the owner of a small garden were to ask how to convert it into a subtropical garden *à la* Battersea I should certainly be disposed to answer, Don't. "A SUBSCRIBER" does not ask this but sends a request for some hints for amateurs upon the subject. Gladly do I hasten to respond, for the matter happens to be one upon which it is desirable a little light should be shed, erroneous ideas as to what may be done in this direction in small gardens being very prevalent. I wonder if it was a reader of the *Journal* who was indulging in a growl over one of the magnificent groups at Battersea last summer—growing because his own gardener had not been so successful in his culture and grouping in the little garden at home. If so, let me say to him with my other readers, Pray consider ways and means before you resolve to enter upon a competition with a large public garden having the advantage of a Government grant, even if your aspirations point only to the reproduction of the arrangement of a single bed or group.

Subtropical gardening if carried out in its entirety is a costly process, involving a considerable outlay both of time and money. There are, however, certain modifications of it comparatively inexpensive, and which may fairly be said to be within the scope of most amateurs. To make this clear it is only necessary to classify the plants available for the purpose under three distinct heads; these are Annuals, Hardy Perennials, and what may be termed Tender Perennials.

By turning his attention solely to the culture of hardy plants, the amateur who has no glass houses may nevertheless impart a tone and boldness of style to his garden which, if not strictly subtropical in the common acceptance of the term, will yet bear an impress of dignity and freedom from heaviness and formality which are eminently desirable.

Hardy plants, then, as being most useful and easily cultivated shall be taken first, and among the best we have *Bocconia japonica* or *Jeddensis* with its curious orange-coloured stems, handsome foliage, and tall feathery spikes of white flowers springing up to a height of 7 feet. *Centaurea babylonica*, a somewhat coarse-looking but not unpicturesque plant, also a tall grower. *Heracleum giganteum*, a fine bold plant, telling well either alone or in the centre of a clump. It will grow to a height of 10 feet, but unfortunately it loses its freshness early in the season, and for that reason should not occupy a too prominent position. Strictly speaking it is a biennial coming into flower the second year and dying as the seed ripens. *Rheum Emodi*, a handsome plant, remarkable for its red-veined leaves. I have not grown this, but saw it in

a flourishing condition in Mr. Carne's garden on the north coast of Cornwall last year. *Rhus glabra laciniata*, the curious and elegant dwarf Sumach, has been much cultivated during the last few years, its graceful red-hued Fern-like foliage rendering it desirable and useful for beds and clumps. *Yucca recurva*, *Y. filamentosa*, and *Y. gloriosa* are all worthy of a place, telling well either singly upon lawns or terraces, or in picturesque groups on hanging banks, or among rocks. *Acanthus latifolius* and *A. spinosissimus* are both fine plants with bold elegant foliage. The flower spikes of *latifolius* are both curious and ornamental, and those of *spinosissimus* are on strong plants quite a yard in height and much brighter in colour than *latifolius*. *Gunnera scabra*, a dwarf plant with curious huge leaves, is very ornamental. It should be planted in a sheltered damp situation in deep rich soil. *Arundo conspicua* answers well in the southern counties, its beautiful drooping plumes being in perfection quite two months before the Pampas Grass, which it is said to equal in height, but I have not seen it as yet above 7 feet, and judging from the slender appearance of the foliage, and, in fact, of the entire growth, I do not think it is likely to much exceed that height. *Arundo Donax* is also a fine ornamental Reed, putting forth its plumes with the Pampas Grass, to which, however, it is much inferior. Its variegated variety, *A. Donax versicolor*, is also quite hardy in the south. Then we have *Ferula communis* with its beautiful, glossy, finely divided foliage; the huge-leaved *Crambe cordifolium*, *Geranium anemonifolium*, a handsome hardy plant, forming bold green tufts upwards of a foot in height, enlivened with numerous purplish pink flowers in early summer. It has answered best with me in an elevated position among some rocks, dying down in winter and springing up again in April. *Statice latifolia* also answers best in a dry well-drained position with a good depth of rich soil. Its large foliage is ornamental and forms an admirable foil to the greyish blue flowers which spring upwards to a height of from 1 to 2 feet. *Dictamnus Fraxinella* with its handsome dark green foliage and pink flowers is a very ornamental plant, and withal one of our oldest favourites, as is also the charming Feather Grass (*Stipa pennata*), just now throwing up its slender plumes. In the southern counties many of the Cannas occupy an important position among hardy plants, but in the cold north they have to be taken up and stored like Dahlias. *Melanthus major*, one of the very best plants in a subtropical garden, is now also left out all the winter in the south, and although it is cut down to the ground by frost, new growth springs from the roots in spring, and is more effective than that of ordinary pot plants. I had almost forgotten the stately *Ailanthus glandulosa*, which in its young state is so beautiful. It has, however, to be cut down annually or otherwise replaced with young plants, so as to secure single stems of stout new growth in order to have the foliage in perfection. *Catalpa syriaca*, *folia* and the Golden Elder (*Sambucus nigra aurea*) are also strikingly effective in a young state.

Next in usefulness to the hardy plants come the Annuals, most of which must be raised early in heat and brought quickly on in pits, or other glazed structures, where plenty of space can be afforded them, in order to bring them to a considerable size before they are planted out when the settled hot weather comes in June, and therefore any cultural hints would be useless for the present season. I may, however, usefully note that many of our best plants are so raised—such as *Solanums*, *Ricinus*, *Cannas*, *Ferdinandia eminens*, *Acacia lophantha*, *Nicotianas*, *Acanthus*, *Melanthus major*, *Ferulas*, *Humea elegans*, *Wigandia caracasana*, the best of its genus; the less stately *W. urens* and *W. Vigieri* also both come from seed.

Lastly come those costly plants which I have termed Tender Perennials, most of which have been repeatedly enumerated in these pages. Now, amateurs do not generally possess a large quantity or many duplicates of such plants, and I must strongly urge the importance of caution in venturing to expose any new or rare plant. Most well-known varieties of Palms bear exposure well, so do *Ficus elastica* and *F. macrophylla*, which may either be planted out or plunged in the turf. Tree Ferns, too, answer in sheltered shady dells. "A SUBSCRIBER" complains that of a *Rhopala De Jonghii* which he put out upon his lawn last summer the leaves become spotted, turn brown, and fall off. Let him apply the lesson and keep it indoors in future; for such a plant, which he now states has recovered, has plenty of beautiful young foliage and is 5 feet high, is much too valuable to be exposed to such risks.

The reports of the summer planting of the beds at Battersea Park and other public gardens which have been given in the

Journal annually for so many years render details of arrangement unnecessary here, and, indeed, little good could be done in that direction unless one could take each garden separately; and if any of my amateur readers become puzzled they have only to submit their plans and arrangements to head quarters at Fleet Street to secure efficient counsel and aid.—EDWARD LUCKHURST.

NOTES ON VILLA AND SUBURBAN GARDENING.

CONSERVATORY.—With a rise in the temperature flowering plants remain a shorter time in beauty now than in the earlier part of the season; consequently, in order to keep the conservatory always gay, a complete overhaul is more frequently rendered necessary, the structure being refurnished with other plants just coming into bloom intermixed with fine-foliage plants. The climbers must be regulated by having their growths neatly secured, and if at all infested with insects war must be waged against them. Azaleas which have done flowering should have all decaying flowers and partly formed seed-pods picked carefully off, and the plants placed in a moist warm temperature, so that a good healthy new growth may be made. This is very important, for on it depends in a great measure the setting of the flower buds for next season's blooming. Syringe the plants frequently, and fumigate against thrips, to the attacks of which the Azalea is very subject. Those plants that flowered early and have made their new growths may be placed in a cold pit prior to being turned out of doors to ripen their wood. Camellias thrive well under exactly the same treatment, with occasional waterings of soot water.

Roses in pots that have ceased blooming will require a little attention to prepare them for another year. The whole of the plants must now be carefully repotted in good silky yellow loam and decayed manure, and be plunged in an open space out of doors, which will establish them for next year. It is not always necessary to pot them into larger pots, but a portion of the old soil can be shaken from them or removed with a pointed stick, the plants being returned to the same sized pots again, always using new or well-washed pots. Dirty pots are not only unsightly, but the plants do not thrive in them so well as in those that have been washed and dried before being used. When the plants are making new roots and growth careful attention is requisite in watering. When fairly established liquid manure should be given to them at frequent intervals. It is with Roses as with many other plants, if a good foundation is not established while growth is being made the qualities of the flowers are very inferior the following season. For Tea Roses a much lighter soil is requisite, therefore mix a proportion of leaf soil with the loam and thoroughly decayed manure mentioned above. Remove all flower buds as they form, and stop any rampant shoots, or they will deprive other portions of the plants of necessary support. Some cultivators do not report their Roses until the autumn, but there is a decided advantage in potting them immediately after blooming.

Richardia athiopica is a most useful plant and will endure much hard usage, but to grow the plants well they require liberal treatment during the summer months. One of the easiest and best methods of increasing both the size and quantity of the flowers is to divide the plants at once and plant them out in a well-manured trench similar to a trench made for Celery. If water is given them plentifully during dry weather they will grow very rapidly and make very fine plants before frosty nights set in, when they should be taken up and potted. We have seen some very fine flowers produced in this way, and the plants almost take care of themselves, with the exception of watering as directed. For the decoration of churches, or for associating with other plants from November onwards, we know of no plants so useful and at the same time lasting in flower so long as *Richardias*. *Schizostylis coccinea* succeeds and flourishes admirably under exactly the same mode of culture; it is very valuable for affording a supply of bright flowers during the dark days of winter. *Spiræas*, *Lily of the Valley*, *Deutzias*, and such-like plants should also be divided and planted out in a spare piece of ground kept as a reserve garden. They will here form new crowns and take care of themselves until the time comes for taking them up and potting for forcing another year.

Summer bedding should now be proceeded with with the utmost dispatch. The weather has been very wet of late, so that the beds are in good order to receive the plants. The spring-blooming plants must be divided and planted regularly that they may form good plants for future work. *Polyanthuses*, *Daisies*, *Pansies*, &c., are increased in this way, but *Wallflowers* (single), *Myosotis*, *Silene*, *Collinsia*, and such-like annuals are best raised from seed. *Hyacinths* and *Tulips* should be taken up carefully and be placed in light sandy soil on some warm border to ripen, when they may be stored away for the season. After removing the spring-blooming plants give the beds a liberal dressing of rotted manure, and dig it deeply in, when they will be ready to receive the summer-flowering plants.

PITS AND FRAMES.—Cucumbers are now growing very rapidly in frames; the growths must not be left to become a tangled mass or they will soon exhaust themselves. Carefully thin out any crowded shoots and stop others. A dose of liquid manure at times will impart extra vigour to the plants. We have by careful management made a three-light frame afford a supply for several months. If there is any fear of the supply running short raise other plants either from seeds or cuttings, and prepare a slight hotbed to plant them out in. The true Telegraph variety is one of the best and freest to fruit of the whole race. The frames and pits which have protected the bedding plants throughout the winter should be turned to account for growing both these and a late crop of Melons. They will require less heating material now than in the earlier part of the year. Melons require a much heavier soil than Cucumbers, and Victory of Bath and Munro's Little Heath are comparatively hardy sorts.

WORK FOR THE WEEK.

KITCHEN GARDEN.

MAKE another sowing of late Peas, which should be the last for the season, except in particularly favourable situations. Any sown after this time should be of the early kinds. A last sowing of Broad Beans should be made. Attend to earthing-up and staking the crops of Peas as they advance, also Runner Beans, which should have the stakes placed to them before they are much grown. A sowing of Lettuces and Radishes should be made every fortnight. In dry soils and warm situations they are best sown for the next six weeks upon a north border. Rampion seed should be sown in drills 9 inches apart, thinning the plants to 6 inches. If sown earlier the plants are liable to run to seed. The seed is very fine and must only be just covered with soil. Cabbages as cut should be cleared off the ground, unless the ground can be spared to allow them to grow, in which case they will afford a capital supply of small heads and sprouts for use in late summer and autumn. A first sowing of Endive, both the Broad-leaved and Curled, may be made. Well ventilate late crops of French Beans in frames, keeping them and also Carrots well supplied with water.

Mushroom Beds.—Beds made as before advised will soon be in bearing. If not, and buttons are not already showing, we advise the first watering to be of hot water—a good surface sprinkling, with a view to the destruction of all insects harbouring about the surface. The bed after watering should be covered with hay which has been well beaten upon a hard floor with long sticks, and slightly damped as beaten. The beating will remove from it all the small parts and render it more tough and pliable, and in removing it is not so liable to injure the button and stalked Mushrooms as ordinary unprepared hay. It should be put on 2 inches thick. The first watering will generally require to be given about four weeks after the bed is made; but if the bed were cold at spawning or only slightly warm it will probably not require water so soon by a fortnight, as in the warm bed (75° to 80°) the spawn will run more quickly than in that of a bed spawned at 70°. The bed should have become dry before any water is given, and not afterwards allowed to become again very dry at the surface.

HARDY FRUIT GARDEN.

Fruit trees generally are making such splendid growth that stopping or pinching will require to be attended to earlier than usual. We, as a rule, do not advise the pinching to be done until the leaves to be stopped back to are full-sized. Shoots, for instance, that are to be stopped to three leaves will not have these full-sized until the shoots have twice the number of leaves. However, the growths are now so luxuriant that stopping is absolutely necessary with Apricots, Plums, and Pears. Any shoots that exceed 3 inches in length should be stopped at the third leaf, leaving the short spur-like shoots untouched. Shoots required for extension and to fill vacant space must not be stopped but trained in their full length, excepting the centre leader, which in the case of Pears or Apples horizontal-trained should be stopped at 12 to 13 inches length, and it will generally push three shoots from the uppermost joints, two available for training horizontally and the other upright as leader. Plums and Cherries are best fan-trained, as when horizontal training of these trees is resorted to the lower branches not unfrequently become so weak as to die off. The branches should not be nearer than a foot whatever mode of training be practised, though in fan-trained trees they of course of necessity must for some distance from the point of origination be at a much closer distance. Morello Cherries and Apricots must have the shoots nailed-in wherever space admits and shoots are available. Forerights and shoots not required for training stop at the third leaf; but strong forerights remove altogether or pinch to one joint. Bush and pyramid trees will shortly require attention, indeed some of them are in need already. We presume that the branches are from 9 to 12 inches distance apart, and that throughout their length are furnished with spurs; these of course will not need stopping, but all free-growing shoots upon the main branches must be pinched to three leaves and to one afterwards, their leads to six, and the leading shoot of the

tree to 12 inches, allowing shoots to remain as may be required for filling-in not nearer than a foot. If this be attended to trees will be had with open heads admitting light and air to every branch. Morello Cherries endure pinching well, taking out the points of the shoots at from the third to the fifth leaf. There is an advantage in stopping the shoots when insects are prevalent, as they generally infest the points of the shoots. If the shoots are placed in a basket as they are removed and promptly burned much present and greater after trouble will be saved.

FRUIT HOUSES.

Vines.—Early houses which have been cleared of fruit should have a thorough washing with the garden engine to cleanse the foliage from dust and red spider, admitting air liberally. The borders inside must have water to keep them moist. The laterals keep in check by stopping, unless the foliage is unhealthy and the Vines weak, when the laterals may be allowed to extend, their growth having an invigorating tendency. A liberal and constant supply of warm air must be afforded Grapes ripening off, maintaining a moist, sweet, genial atmosphere in houses where the fruit is swelling; closing early on fine afternoons with plenty of moisture, so as to husband as far as possible sun heat and save fuel. Muscats, and particularly Lady Downe's, when completing the stoning process are liable to scald in bright weather and should be carefully watched, seeking to lessen the evil if it appear by early air-giving and liberal ventilation during the day for about a fortnight, when danger from scalding will be past. Late Grapes in flower should have a constant circulation of dry warm air, with a temperature of not less than 70° at night and not exceeding 90° as a maximum by day. Vines in light soils not unfrequently suffer from dryness; such should be well watered and mulched in dry weather. Vines in full growth can hardly be overwatered, the borders being well drained, but avoid driblets; one good watering is worth fifty sprinklings. Crops swelling off should have a little guano sprinkled over the surface of the border previous to watering; it is of service in assisting the swelling, and a good mulch will keep the border moist for some time longer than were none applied. The thinning of Grapes ought not to be delayed a day after they become fit for the operation, for they soon become too large to be quickly thinned and have a good appearance. Keep the laterals well attended to in stopping, it being disastrous to allow them to grow and remove them in quantity. Cut off all badly placed, small, or otherwise undesirable bunches, cropping lightly, aiming at high finish rather than bulk. Grapes intended to hang late should be well thinned, particularly in the interior of the bunches.

Vines in pots raised from eyes inserted in spring, or cut-barks grown-on, should be stopped when 8 or 9 feet long, the laterals and sub-laterals being stopped to one leaf. This more particularly applies to those intended to fruit next season, as by close stopping the eyes are "plumped" and the wood hardened. Those intended for planting-out need not have the laterals stopped at all. This is a good time to plant out Vines from eyes struck in February and grown-on in pots or turves. The roots will not have become much twisted and need not be disentangled, or only such as can be done without breaking up the ball. Water well at a temperature of 90° to 100°, and mulch with a couple of inches of short dung; keep up a moist atmosphere, and shade from bright sun until established, maintaining the temperature to 70° at night, 75° by day, rising to 85° or 90° with sun and air, closing at 80°. With good management a moderate crop of fruit may be had the following season. It is necessary at this time of year to give air early in the morning, as the sun coming in contact with the moisture condensed upon the foliage during the night causes scorching unless air has been previously given.

Peaches and Nectarines.—A good succession of Peaches and Nectarines may be had by a judicious selection of varieties, Early Beatrice, Early Louise, Early York, Royal George and Noblesse ripening in succession. In Nectarines Lord Napier is succeeded by Elruge. Admit air very freely in the daytime, leaving some on at night. The temperature may be gradually reduced but not allowed to fall below 60° at night, or a check may be given resulting in a loss of foliage. The border should have a good watering when the fruit has been gathered; syringe the trees to cleanse the foliage of spider and dust. In succession houses the tying-in of the shoots, stopping, &c., must be attended to, syringing twice a day. The watering of inside borders will require more frequent attention now that warmer weather may be expected. Any leaves that shade the fruit should be removed after the fruit commences swelling after stoning, so that the sun and air may colour them equally. Keep the shoots thin in the latest house, as this is important in securing the ripening of the wood. In houses in which very little fire heat is employed mildew occasionally appears. If specks of white appear upon the fruit rub sulphur upon them and dust the foliage with it. Aphid is best overcome by repeated fumigations, but the foliage must be dry, and the fumigations moderate and repeated as often as necessary. Strong fumigations are dangerous. It is important that Peach houses be ventilated early in the day, and that the top lights be not entirely closed at night.

Strawberries in Pots.—Those in cool houses and frames are

swelling-off their fruit. The plants should be watered two or three times a day according to the weather, and have liquid manure two or three times a week until the fruit commences colouring, after which give water only sufficient to prevent the foliage from flagging; this with plenty of air is conducive of flavour. It is astonishing what fine fruit is obtained from plants in pots half plunged in soil in cold frames. A span-roofed frame 4 feet wide will hold four rows, the plants a foot apart every way, a 60-foot length holding 240 plants. The fruit requires to be trussed-up; and whether from the plants rooting into the soil and enjoying greater moisture, or the dry warm air afforded by the frame, the lights being opened about 6 inches on each side, the fruit is certainly finer and higher in flavour than that had by other means. We not infrequently place the frame, after the crop is had from those in pots, over those in the open ground, it covering two rows of plants; and in a wet season such sorts as Dr. Hogg, British Queen, Filbert Pine, and Premier so liable to spot, are very much improved in flavour. When the fruit is cleared off the plants they should be at once taken out of the houses, as they mostly are infested with red spider, which soon spreads through the house if there be any delay in their removal.

FLOWER GARDEN.

The planting-out of Coleuses and Alternantheras may be proceeded with provided they have been duly hardened off, otherwise it is best to defer planting for a few days. Subtropical plants, such as *Ricinus*s, *Solanums*, *Wigandias*, *Aralias*, &c., should be at the time of planting staked and securely tied to prevent them being injured by the wind. In geometrical designs there is often too much flatness, which is easily broken by a few plants of *Palms*, *Yuccas*, *Dracenas*, tall succulents, &c., which judiciously placed break the monotony of formal arrangements and impart grace and beauty. Attention must be paid to watering and shading such plants as require it; pinching, pegging, and otherwise regulating the growth so as to have the lines of colour clearly defined. A sowing of annuals for late bloom may now be made, also sow *Mignonette* plentifully in a sheltered situation and well-drained soil for securing a supply of spikes late in the year. Annuals sown previously will now require thinning if not already done. It is no use expecting a fine display of flowers if the plants have not space to attain full development. Stocks, Asters, Marigolds, and other half-hardy annuals raised in cold frames will now be ready for planting out. They like rich soil and an open situation. Herbaceous plants should be attended to with stakes—i.e., such as require it. This department of the garden should not be neglected, for the time is coming when flowers from under glass will not be so plentiful, and a well-stocked herbaceous border will afford much that is useful for cutting. No department of a garden affords such interest for the labour bestowed on it as that containing hardy plants.

TRADE CATALOGUE RECEIVED.

John Laing & Co., Stanstead Park Nursery, Forest Hill, S.E.—*Catalogue of Store and Greenhouse Plants, Florists' Flowers, Vines, &c.*

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense. Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

DOUBLE VARIETY OF *CARDAMINE PRATENSIS*.—"An Old Subscriber" says it is found in Lancashire growing with the ordinary single specimens.

LIXIA FLOWER (*Lady W. G. O. E.*).—The colour is not uncommon.

VALUE OF LARGE ORANGE AND LEMON TREES (*Mrs. Owen Lloyd*).—Large Orange and Lemon trees upwards of thirty years old and very fruitful are undoubtedly of considerable value, and may be worth ten or fifteen guineas apiece, or even more if they are in tubs and are really fine, healthy, handsome trees. It is impossible to give a more explicit answer without seeing them.

REMOVING SHOOTS AND RODS OF VINE (*A Constant Reader*).—Mrs. Pince with us fruits freely upon the spur system, it being quite unnecessary to train it upon the rod system, which is what we presume is meant by its bearing only on last year's wood. It appears that you crowd the shoots too much. We should train up one only of the shoots from the base, removing all the shoots upon the rod above it not bearing fruit now, the "old rods" being removed so soon as the fruit is cut, or if no fruit be retained they may be removed so soon as the shoot from the base is in free growth. Let the shoot grow until it reaches the extent of the space, then stop it. Stop the laterals at the first leaf and allow the sub-laterals to make three or more leaves before again stopping, provided there is space; but if likely to crowd stop them at every leaf. In autumn you will have a strong cane. When the leaves fall cut it back to 6 feet from the bottom of the trellis. Before growth commences depress the upper part of the cane so as to induce it to break equally throughout its length. Rub off the shoots so as to leave those for

permanencies at 18 inches to 2 feet distance on opposite sides of the rod, training the uppermost as leader, which should be treated similar to its predecessor, and in early winter it may be cut back to within 6 feet of its base. The side shoots should be stopped two joints beyond the fruit, if no fruit two joints beyond the first tendril, stopping the laterals at the first leaf. The shoots cut back to two eyes after the leaves fall, and the shoots that proceed from them should show fruit. This (the spur system) will be better than the rod, particularly as you intimate that your house is too crowded, the cause unquestionably of the unfruitfulness of this very fruitful Grape. The house being too shaded, we presume by overcrowding, by all means remove the Trebbiano, especially as it does not perfect its Grapes.

REPOTTING *AMARYLLIS* (*Idem*).—After flowering turn the plant out of the pot, divide it, preserving all the root possible to each bulb, and pot in pots about twice in diameter that of the bulbs. We do not employ larger than 7-inch for the largest bulbs. The pots should be well drained, the soil worked in among the roots, the bulb with its base nicely covered with soil, leaving about three-quarters of an inch below the rim for water. Shade for a few days until the potting is recovered from, keeping the soil moist, then afford a light situation and keep the plants well supplied with water. Turfy yellow loam with a fifth of well-decayed manure is a suitable compost, but we omit the manure, and feed during growth with weak liquid manure.

GREENHOUSE SHELVING (*Etc.*).—Iron shelves may be had of any horticultural builder, but they are very much more expensive than slate shelves and not so durable, as they are constantly being wasted by rust, though if kept well painted the objection ceases. Slate is more expensive but cheaper in the end than wood shelves. The slate shelves should have brick, stone, or slate supports, wood soon decaying. For ordinary greenhouse shelves latiss 1½ inch broad and 1 inch deep, fixed 1½ inch apart to bearers 3 inches by 2 inches, narrow surface upwards, at 2½ feet apart, having uprights of the same strength to support the bearers, one end of the bearers being let into the wall, form a very suitable stage or shelf very much more durable than solid wood shelves, and otherwise more desirable. Painted three or four coats stone colour they last a long time, sound well-seasoned timber being employed, and painted not more distantly than every second year.

COARSE LAWN GRASS (*E. M. S.*).—The coarse grass which spreads so fast and is so difficult to eradicate is couch grass, *Agropyrum repens*. You will not get rid of it unless the whole of the turf and 2 or 3 inches of soil is pared off and burnt, but we strongly question the necessity. Frequent mowings will render the growth of all coarse grasses comparatively fine. At this season of the year all lawns require mowing at least twice a week. A scythe ought never to be used upon your plat of about five square perches. You have a mowing machine. To use it with ease the grass must be kept short; let it be so kept, and you will not have any very coarse herbage—certainly nothing to offend the most critical eye. Give this plan a fair trial, and if you are still dissatisfied with your lawn pare the turf and burn it so as to ensure the entire destruction of the creeping stems of the couch grass, dig and break the soil finely, spreading the ashes among it, make it quite level, roll it, rake it, sow the seed, and again pass the roller over it. This may be done either in September or March, and a sharp look-out kept for the birds, which are fond of the seed. The first few mowings must be done with the scythe. Pay close attention to mowing and rolling, and you may bring such a lawn into decent condition in a single season. Three pounds of seed would be enough. This should consist of the mixture of fine lawn grasses, Trefoil, and white Clover, which is prepared by many of the large seed firms whose advertisements appear in this paper. Weeds are quite certain to spring up among the grasses and must be pulled up.

INSECT ON VINE (*R. T. Higham*).—*Coccus vitis*. There is a portrait and full relative details in our "Vine Manual." (*J. K.*).—They are thrips, which usually succumb to repeated fumigations. You will find reference made to this insect and its eradication in another column.

INSECT IN POTS (*J. H.*).—The specimen you enclosed had escaped. Send one in a box.

NAMES OF PLANTS (*Cranfordian*).—Send a specimen when in flower. (*G. Todd*).—*Diplacus puniceus*. (*X.*).—The Gold-weed referred to in a former paper of "The Home Farm" is *Ranunculus arvensis*, or Corn Crow-foot. (*W. C. E.*).—*Prunus Padus*, or an allied species. (*C. T.*).—*Habenaria bifolia* (*H. chlorantha*); not uncommon. (*Arthenice*).—1, *Symphytum orientale*; 2, *Smyrniolum olusatrum*; 3, *Sinapis alba*; 5, *Rosa Banksie*; 6, specimen insufficient. (*Horace*).—The flower is that of a *Ceanothus*, but do the leaves belong to it?

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

"QUARTER EVIL" OR "BLACKLEG" IN CATTLE.

THIS subject has lately been prominently brought to the notice of cattle breeders by the death of a pedigree shorthorned heifer belonging to Mr. George Fox of Elmhurst, near Lichfield, Staffordshire, who states in a letter published in the *Agricultural Gazette* as follows:—"On the 14th of March last I lost by death my red heifer, the Duchess of Elmhurst, out of imported Duchess of Airdrie, twentieth, by Duke of Geneva, ninth (28,391). The disease of which she died is locally known as 'blackleg' or 'quarter evil.'" In taking up this subject with the view of illustrating the causes of this fatal malady, we shall occasionally quote from Mr. Fox's letter, adding such remarks as in our own experience and that of professional veterinary practitioners apply to the subject. Mr. Fox states as follows:—"The Duchess of Elmhurst was calved on November 17th, 1876, and consequently was sixteen months old. She was always a particularly robust and healthy animal, very round in the rib, covered with a coat

of fine mossy hair, short in the leg, and what is called a 'good doer.' During last summer most of her time was spent in the open pastures, running with a nurse cow. At 'taking-up time,' say the middle of October, she was drafted with eight others of almost the same age as herself into an open yard with covered sheds, in which they have been kept all the winter." We shall quote the dietary further on.

With reference to the system of management there seems at first sight but little to complain of, or likely to predispose animals to this malady. It is, however, a case of blood poisoning—that is to say, an abnormal state of the blood, being too rich and becoming dark-coloured and defibrinated (as stated by the veterinary authority in the *Agricultural Gazette* in connection with this subject on the 25th of March last). It therefore becomes a question how far the treatment or management of this animal contributed towards the state which produced its death. The nurse cow appears to us a superfluity for so long a period as ten months, and may be credited with having produced in this case a plethora of too rich and consequently unhealthy blood, particularly when the heifer was probably living on pasture sufficiently rich and forcing to have maintained her in good condition without any assistance. We in consequence must consider under the circumstances the policy of using the nurse cow as very questionable, and it very probably may have laid the foundation of the future disaster.

Referring to the accommodation in the winter of an open yard and sheds, these, unless they are properly constructed, may be very bad for cattle although well littered with straw, for unless sufficiently drained so that no water may underlie the bedding, when animals lie down they may take a chill and produce inflammation and symptoms almost equivalent to blood poisoning. A shed to be healthy should have the floor raised at least a foot above the level of the open yard, and if covered with a good layer of dry earth or ashes so much the better. We will now quote Mr. Fox's statement as to the feeding, &c., whilst in the yard and shed. The morning meal "consisted of 1 lb. of linseed cake mixed with 'chop' (hay and straw) and a small quantity of long meadow hay; during the day an open crib supplied with oat straw or rough hay; the last meal at night was the same as in the morning. The little herd were turned out to water morning and afternoon, and, weather permitting, went into a small paddock for two or three hours in the day for exercise. Under this treatment all the animals have grown well, but are in store condition only. For about a month past, in addition to the above, the animals have had half a pound of crushed oats and about 7 lbs. each of pulped Swedes added to the morning's mixture." In this mode of feeding we can discover no reason to induce the belief that the food in the yard had anything to do with producing blood poisoning. We do not, however, know as to the purity of the water, and it is just possible that some impurity might have had some injurious effects. Still the fact remains that the feeding in the yard was too low considering the heifer had the assistance of a nurse cow all the summer previously. This heifer died at the end of about twenty-four hours after the disease was first noticed, and this circumstance is strictly in accordance with the known fatal effects of "quarter evil." We have had stock that suffered from it, and never knew any case where the animal recovered from the attack. At the same time we have had the best advice from clever and experienced veterinary surgeons, who declare there is no remedy after the attack.

We now have to consider the most important points in connection with this subject, because, if there is no remedy, we must look to prevention and precautionary measures. We can quite understand the feelings of a cattle breeder like Mr. Fox upon the death of such an animal; for although we are informed that this heifer was worth, or would have sold for five thousand guineas, yet this is a loss of money only, which wealthy individuals can bear without serious derangement of their affairs, but not so with the loss of a shorthorned heifer of such a pedigree. To any man who is enthusiastically fond of well-bred cattle of any breed success will not always so far attend his endeavours in breeding full pedigree stock as to insure him such an animal as we are remarking upon, let his judgment be what it may in following out all the requirements of breeding, such as judicious selection and mating the animals. In our own experience we every year lost some of the most thriving heifers when they were allowed to feed on the pastures and lie out at night. After this continued loss, instead of using any remedies we merely kept them in small yards and sheds in pairs, the space being 12 feet by 12 feet under cover, and 12 feet by 20 feet in the open, and for a number of years we never lost a single heifer. They were kept thus until they dropped their first calf. We do not advise this practice to those who have pastures to be fed, but merely allude to it as showing that certain pastures actually favour the "quarter ill," and more particularly we find it the case when the pastures are low-lying near a brook or a rivulet where night fogs prevail. We are strongly of opinion that sheds and yards which lie low and below the fog level are dangerous quarters for cattle to be wintered in, even under the most careful management. It is said and believed both by practical men and veterinary surgeons that certain

pastures predispose or render young cattle liable to the attacks of this malady, and our own experience quite confirms this view of the subject.

With respect to treatment of young stock by introducing a seton or rowel in the dewlap, it is always best to have it done by a competent veterinary; but the first question which arises is the age at which to insert the seton. Some parties contend that it should be done at the age of six or seven weeks, but we have never known it done so soon. We consider that from three to four months is sufficiently early, particularly if they are treated only as calves receiving milk, and only turned out at daytime for exercise and housed at night and in bad weather. It is also an important question as to how long the seton should remain in active operation, for, strictly speaking, setoning is done upon the principle of counter-irritation. It is only reasonable to suppose that unless it is continued until the heifers are in calf, and thus be passed the usual period at which they suffer from this complaint, that they would still be in danger if the seton is allowed to fall into disuse in the interim. This raises the question, How is it that heifers whilst in calf are not usually attacked by "quarter evil"? We think that it may be explained in this way—that during the period of gestation the nourishment required by the foetal calf absorbs any excess of richness in the blood. We are, however, strongly of opinion that there is still the constitutional predisposition in certain animals to make more and richer blood than can be utilised, which often shows itself in the "drop" or "puerperal fever" in the cows at calving time. The evidence in favour of the seton is too strong both for practical men and professional men to disregard it, and particularly when the animals are given occasionally doses of saline mixture. For this purpose it is recommended that half an ounce each of nitre and chlorate of potash and 1 to 2 ozs. of Epsom salts be given dissolved in a pint of warm water. We again quote from the veterinarian article in the *Agricultural Gazette*, advising that the various "causes known to engender 'quarter evil' must be sedulously avoided; young cattle must be kept steadily thriving without check from birth."

In this unfortunate loss of the Duchess of Elmhurst we are left comparatively in the dark by Mr. Fox's statement upon some important points—viz., he does not state whether a seton was ever used; he does not state the situation of his meadow land, or his yards and sheds, whether they are low-lying or otherwise; nor does he say if the cattle on this property are more than usually subject to this disease. The turning point of the whole matter to our mind rests upon that which nobody has alluded to—that is, ascertaining by bleeding the state of the animal's blood. The post-mortem examinations of animals dying of this complaint are uniform in describing the state of the blood as being the cause of death, and as setoning cannot be considered an infallible remedy still it is the best precaution in use. As it is admitted by all that the best doers are the most liable to be attacked, would it not be a wise precaution, as supplementary to setoning, to take from them at certain periods say a pint of blood from the neck vein? and if the blood exhibited a great deficiency of fibrine then the treatment may proceed in such a way as to avoid forcing food and too liberal a supply of the albumenoides, such as decorticated cotton cake or bean meal. It must not, however, be supposed that we object to a generous diet for young cattle, but we wish it to be borne in mind that animals thriving rapidly, making blood quickly, with the symmetry and quality which are the indications of profitable feeding, furnish the largest proportion of cases of "quarter evil." It is to these that we wish to call attention, and recommend, in addition to setoning, that the animals should be bled occasionally, carefully noting the state and composition of the blood after standing by for a few hours. Amongst all the heifers that we have bred up under cover from birth, and which have been killed for beef, we have never had a case of "quarter evil," although they had led a life of quietude without exercise under the highest feeding with which we were acquainted. Yet it is said by veterinary authority that want of exercise is one of the predisposing causes of the malady.

We cannot conclude this subject without reference to our own thoughts with regard to the maintenance of a herd of the most valuable and purest pedigree animals, especially of Shorthorns, that such animals have been for a long period bred, fed, and cared for by management in such a manner as to constitute them as exceptional stock, in fact almost artificial animals. As such they ought not to be treated as ordinary stock, whether we look at them from a money point of view or as animals upon which we have set our mind and made it our pride and our pleasure to possess them. We cannot, therefore, advise that any person having a herd of such splendid stock as the best tribes of pedigree Shorthorns should attempt to treat them only as ordinary horned cattle, believing that they will often be disappointed of either pleasure or profit by such management. These observations are especially addressed to the home farm managers, as this stock is generally kept in smaller numbers in such cases, and the details required for successful management can be the more easily attended to.

This disease is neither infectious nor epidemic, and is almost

wholly confined to young cattle from one to two years old. When first discovered the animal appears dull and heavy, and walks lame as if sprained. In a short time a swelling takes place in some part of the body, as on the legs, shoulders, under the belly, or on some part of the back, but especially in the hind quarter or thigh, hence the name of the disease "quarter ill." These swellings are at first soft, but soon a quantity of air is generated in them by the extravasated blood, particularly in the cellular membrane situated between the skin and the flesh, which produces a crackling kind of noise when they are rubbed or pressed by the hand. The mouth and under the tongue are sometimes affected with blisters, which arise from the severity of the fever, the pulse also being quicker than natural.

WORK ON THE HOME FARM.

Horse Labour.—The teams have had more lost time than is usual in the month of May. Some of the preparations for roots are in arrears, particularly on land intended for Swedish turnips; in fact there are some cases where the mangold has not yet been sown. Under these circumstances the horses will now be the more required to complete the cultivation for roots, and in most cases at this advanced period the scarifier will be more useful than the plough, and the land be ready earlier to receive the seed. The field grasses will now be ready for cutting, and should the weather turn to dry all hands will be required in cutting and making the hay. As the carting and rickling of hay often comes at the busy time of turnip sowing this should be anticipated by having everything ready, so that no time may be lost when the hay is fit for the stack. Bavins or faggots may be got ready on the spot for making bottoms for the hayricks in those cases where there are no permanent rick stands. We may here state, when the season for hay-making is adverse and the hay coming to hand in doubtful condition, and where there is plenty of good sweet straw of either wheat, barley, or oats, it is recommended to use some in layers whilst making the hayrick, particularly when it is likely to overheat. The straw will not only tend to diminish and prevent excessive heating, but will when cut out prove superior fodder in consequence of having imbibed the aroma from the hay. The seeds for roots should now be provided, also the manures—such as guano, bone dust, and superphosphate—should be purchased and got home, and placed in the manure shed ready for use. The ashes intended for mixing with manures should also be screened and prepared ready for mixing and drilling with artificial manures. All this work should be anticipated and got ready to hand, in order that in the busiest time there may be as little delay as possible in the work of the farm.

Manual Labour, such as hoeing beans, peas, potatoes, &c., is very much behind with the season in consequence of the succession of heavy rains; in fact where the hoeing has been done the weeds have in many cases struck root again. In the case of beans and peas another hand-hoeing will be almost impossible owing to the rapid growth induced by the late showery weather. Potatoes may be horse-hoed and hand-hoed for some little time yet if the weather should turn favourable. In horse-hoeing potatoes all the weeds may be destroyed, but not so with the couch, and in order to free the land we send women in advance of the horse-hoe a day or two previous and fork-out the couch, otherwise this will increase enormously in good land in the high cultivation requisite for potatoes. The odd horse will now be employed in carting green fodder for all the animals on the farm, and sometimes there may be work for two horses and carts, because where the green crops are used for the cart horses, the dairy cows, the horned cattle under cover, and the pigs also, a large quantity may be required. This may be supplemented by the grass round the borders, banks, and ditches of the fields, and will keep young cattle and pigs, particularly breeding sows, in capital condition, and tend to keep the fencing of the farm in a decent state. Some pastures whilst being fed by dairy cows are much infested by the common buttercup as it is called, producing yellow flowers, which is very pernicious and distasteful to the cows, and affects the quality of the butter injuriously, it being of a very hot and acrid taste. We therefore run the scythe lightly over the pastures, taking off the flowers when at full head. After this we find that the cattle eat the grass much better, and after being cut down once they do not appear again in sufficient numbers to injure the feed. The shepherds will now be busy, as the shearing time for sheep has come; and in cold showery seasons with sometimes rain at day and white frosts at night, the animals after being shorn should be got into a barn or sheltered yard for a few nights. We have known many sheep killed by being exposed at night in some adverse seasons. In some of the southern and south-western counties where the horned sheep are kept the rams will now be put with ewes, and particularly the off-going ewes to be sold away for producing early lambs. In these cases we like to shear the rams a month before being turned out, but the ewes are not shorn until they have offered to the ram.

MR. O. E. CRESSWELL, has been requested by H.R.H. The Prince of Wales to undertake the office of a juror for the show of poultry

at the Paris Exhibition. Mr. Cresswell has accepted the office, which is entirely an honorary one.

BANTAMS.

(Continued from page 384.)

CLEAN-LEGGED Rose-combed Bantams, both Black and White, are extremely attractive; they, too, are active on the wing, but not such determined flyers as Game Bantams. Many people seem not to know that all poultry may be kept within bounds by clipping the primary quills. These are naturally tucked under the secondaries when the wing is closed, and so the bird's appearance is in no way damaged by the operation. Black Bantams should of course be of a rich sheeny black all over, Whites of the purest white, and both should have round smooth white earlobes. There is some difference of opinion as to the proper carriage of these varieties (at least of the Blacks, and the standard of form would seem naturally the same for both varieties), some fanciers preferring them with wings carried well up like Black Hamburgs, others like the Bantams of old with wings touching the ground. We hardly admire the latter type, but certainly like to see their heads well thrown back, and this carriage is generally accompanied by wings drooping more than those of Hamburgs. The Black variety is very popular, and classes for it at the greater shows are always well filled. We find them capital layers, hardy and easy to rear. We once had Whites, but found them delicate and by no means so productive. We do not at all believe in the old theory that white birds are necessarily delicate, but this variety has been neglected and left in the hands of one or two fanciers; hence probably it has been in-bred, and so has become weakly. The Rev. F. Tearle of Gazeley Vicarage, Newmarket, has the best yard of Whites that we know of. There is little competition in the class, and it would be an interesting breed for a young fancier to take up. White Bantams should have white legs; we have seen blue legs even in prize pens, but think them an eyesore.

Sebright or Laced Bantams—the production during this century of a scientific and indefatigable fancier, Sir John Sebright—are surpassed by none in beauty. Each feather must be evenly and moderately laced or edged with black, and that this marking may be uniformly carried out the cocks must have hen tails with no approach to sickles. They are content with very small quarters; indeed we have seen a pen happy and healthy in a Dove's aviary. It is true that they are by no means productive, but in some cases this is a great advantage both to themselves and to their owners. Children's pets have a habit of outgrowing in number the accommodation of their quarters. Tender hearts cannot bear to have a favourite killed, and the stock suffers from this mistaken kindness. Sebrights when small and highly bred will give little trouble on this score, a large number of their eggs generally being infertile.

Booted Bantams are very quaint. When in good plumage and condition the Whites are very handsome. Blacks are rare and generally have many red feathers, though we have seen a capital pair shown by Mrs. Holmes of Bath. They, too, are content with small quarters, and we strongly recommend them as pets to those who do not exhibit at the great shows. To those ambitious of winning high honours they seem extremely troublesome, for it is most difficult to keep their foot feathers in good order: they break on grass, or on gravel, or in straw, or after being long wet. We once had a lovely little fellow of this breed lent to us for his portrait to be taken, and we shall never forget the precautions lest he should spoil his beauty. He lived in a large exhibition pen on a floor covered with chopped hay.

Japanese Bantams are extraordinary little creatures—worthy fowls for so peculiar a people. They must by no means be confused with Japanese Silkies, a totally distinct breed, of which we shall speak another time. At first they strike one as a dwarfed and not symmetrical breed, but their ways are so amusing that they soon become favourites. They are the dummies of the Bantam tribe, very short on the leg, with large heads and combs and immense tails; their legs are yellow. The lighter colours were formerly most admired, but a lovely dark pair brought from Japan in the "Sunbeam" by Mrs. Brassey deservedly took the fancy of most judges at the great shows of last winter. Then as to Pekins. Well, it is a cruel satire to recommend them when we cannot suggest how or where to procure them. Those in England are, we believe, all descended from a single pair taken at the sacking of the summer palace of the Emperor of China. We know of but two possessors of them, and hear that they now breed very badly. A cross with Nankins might invigorate the race and prevent its becoming extinct. We once advertised for some, but the only result was a shoal of letters to inquire if we possessed and would sell them. They should be exact and tiny counterparts of Buff Cochins. They have the placid confident air of Cochins, which makes them look charmingly happy and contented in a little show pen. Of the rarer and now less known sorts we consider Nankins by far the most attractive. They are fair layers, too, of singularly large eggs for their size. The rich ginger and

chestnut shades of the cocks and the soft buffs of the hens are very pretty. We are told that they were common in England fifty years ago. Their combs may be either single or rose. At exhibitions judges seem to favour the latter when they notice (though they rarely do so) the little creatures, but our own best and smallest birds have single combs. Their legs should decidedly be blue. Partridge Bantams were, we suspect, nearly allied to Nankins. The old Golden and Silver-spangled seem almost extinct. We remember them, and have a stuffed specimen of a hen which lived long before our own days.

In some few particulars Bantams require different treatment to most young poultry. To begin with: Though most of them when full grown are hardy birds the chickens are not so in their early days. They develop their first feathers with great rapidity, and while this growth is going on must be kept dry and tolerably warm. We always put them in coops with wooden bottoms raised off the ground. In the earlier months the coops should be under a shed, and at all times they should have little wire runs in front, over which sacks can be thrown during rain. As a rule we find Japanese Silky hens far better mothers for them than Bantams, which are too anxious and fussy and will not endure interference. Many people advise rearing Bantams in the autumn with the object of checking their growth and so keeping down their size. We cannot appreciate the wisdom of this plan; for in the first place the major part always succumb to the early winter, and furthermore in all varieties of Bantams save Sebrights and Pekins the sickles of the cocks are one of their chief ornaments. These are seldom acquired during the year by any save fairly early birds, and in all Bantams are very inferior after the first year, so that late-hatched cockerels do not generally ever possess them at all in perfection. We like to hatch Bantams in May.

Then as to feeding. It is most important not to stuff them and so increase their size; still the young chicks must be constantly fed for three weeks or so, or their strength fails. Where insects abound they will pick up support enough, but where premises are too small for this a few groats or crumbs must be frequently thrown them in their earliest days. When once fully fledged they will thrive on two meals a day. Their diet may well be more stimulating than that of the larger breeds: a little of the spiced foods which we abhor for Dorkings, Cochins, and Brahmas may be given with advantage. The development of their adult form and plumage will be hastened, and this is an advantage. There need be no trouble taken to separate the sexes as with half-grown chickens of the large breeds, only do not let your numbers increase too much for your accommodation. Bantams are the fowls for the busy, who can only spare them a few minutes of attention in the day. To such we recommend them, and are sure that a little leisure time bestowed on them will not be profitless.—C.

FEATHERED FRIENDSHIP.

AN instance of what may be justly termed bird-taming extraordinary is afforded by Mr. McIntosh in his beautiful garden at Duneevan, Otlands Park, Surrey. Always at home attending to and enjoying his garden, the owner has contributed a striking and wonderful feature of interest to his home by having domesticated birds that are usually wild, timid, and mistrustful. Two years ago we saw a Robin follow its friend and benefactor all over the garden, and so great was the intimacy existing between them that the bird would fly up, settle and nestle in its protector's beard and pick the crumbs from his mouth. What a subject for the pencil of Mr. Harrison Weir! The confiding bird it is supposed paid the penalty of its extreme docility, for it has not now been seen for a considerable time. Mr. McIntosh has, however, succeeded in securing the confidence of other birds, and although the intimacy of them and their protector is not quite so great as in the case of the Robin, yet is scarcely less remarkable because of the greater natural wildness or timidity of such birds as Chaffinches and Song Thrushes. Chaffinches, it is well known, are pert enough and will permit the near approach of man when they are provokingly engaged on a bed of newly-sown seed; but it is far from the nature of the bird to regard man as his friend. That, however, appears to be the fault of the man rather than the birds. It is new to see Chaffinches follow, not afar off, but at the distance only of a few feet, the steps of a gentleman around his garden. At one moment the birds are in a bush at his elbow, at another whirling round his head twittering their request for a crumb. Never without a supply of biscuit, their provider scatters it, and the birds peck it from the lawn near his feet. Equally familiar are the Thrushes and their friend. Those timid birds, which usually dread the approach of man, at Duneevan are as tame as chickens. Not only does the mother Thrush fetch the scattered food that is given and carry it to her young, but when the young birds are fledged she brings them to the source of supply, and feeds them in the greatest confidence close to her friend and his visitors. So thoroughly domesticated has this Thrush become, that if other birds attempt to obtain the food thrown to her she will quietly remain pecking while the interlopers are frightened away. This is the second year of Mr. McIntosh's intimate

acquaintance with this confiding bird. The goodwill existing between the owner of Duneevan and the feathered tribe affords evidence alike of the tractability of birds in a state of liberty, and especially of the great power of kindness and gentleness when those attributes are exercised perseveringly. The extraordinary tameness of the birds in question renders Mr. McIntosh's garden and grounds additionally enjoyable by the several visitors who call to inspect them.—VISITOR.

VARIETIES.

MESSRS. GOLDSBROUGH of Melbourne state in their report prepared for the March mail from Australia that owing to losses through the great drought there will be a deficiency in the year's supply of wool for export. Their estimate for the three leading colonies—Victoria, New South Wales, and South Australia—is that the total will be less by 90,000 bales than it would have been if the season had been ordinarily favourable and had given the usual increase of 7 or 8 per cent. over its predecessor. Assuming that each bale contains 100 fleeces, this shows a deficiency of 9,000,000 sheep; so that in fact, instead of shearing about 68,000,000 in the above three colonies, only 59,000,000 were mustered. The shipments from the other colonies—Queensland, Western Australia, and Tasmania—are comparatively unimportant, and do not affect the result. New Zealand will probably show a slight increase.

—THE Government of Chili has officially announced the recent discovery of large deposits of nitrate of soda and of guano in the vast desert of Atacama, which lies between the 23rd and 27th parallels of latitude, and extends almost from the coast line to the base of the Andes. The nitrate of soda is described as of great richness, and the deposits of guano will bear comparison with those of Peru both in their quality and quantity. In order to turn these sources of wealth to practical account the Government has determined to construct railroads communicating with a shipping port on the coast.

BEE MANAGEMENT.

THE following is extracted from a letter sent to Mr. Pettigrew. "Yours is a practical work, and many people will thank you for its sound information. We bought a dozen large hives, 20 inches wide by 12 deep, in September, and put two or three swarms in each of them according to your directions, fed them for about fifteen days, and wrapped them well up with old rugs, &c. We have fed them gently this spring, and to-day we have examined them and found them full of combs and bees to the bottom. We have not lost one, nor is there a weak stock amongst them. The weather is excessively cold here, and has been snowing twice to-day. If the weather become favourable we shall see the worth of large hives. Old bee-keepers here laugh at us, but we can bear this. We saved all the bees in the village from the brimstone pit last year and united them without any trouble, and have you to thank for that.

"I must tell you I have not kept bees solely for their honey-gathering properties. I have been a gardener here for forty years, and know that we are greatly indebted to the honey bee for our crops of fruit and for some good varieties of vegetables. The blossoms are impregnated by bees, and here we have raised several new broccolis—viz., Mammoth, British Queen, Emperor, Surprise, and some others not yet sent out, also some good sorts of apples. For these and many more we are indebted to the honey bee. After all has been said about the profits of bee-keeping and the properties of bees half their worth has not been told. I saw two of your large hives which stood in the midst of the town of Hull taken last September; one weighed 96 lbs., the other 35 lbs. I do not now keep wood hives, for I found if I had a dead stock it was in a wooden hive.—JOHN ELLIOTSON, *Holderness, Yorkshire.*"

ON BEE-FEEDING.

WITH bees, as with mankind, the way to the heart is through the mouth. Profit depends upon good food and good feeding. No living creature thrives, and still less does it pay, if badly or scantily fed. Food for bees, as for all animals kept for profit, must be suitable in quality and sufficient in quantity, or the bee-keeper's hopes will be certainly frustrated. Cold will not kill bees if moderate care be taken of them, for it is well known that they live and thrive in the cold parts of Russia. I have picked up a queen bee in the garden path apparently dead in a bright but cold day, I think in early February, and I have brought it round with a little care and kept it several weeks indoors, and returned it to the hive from which I had reason to believe it had escaped.

It has been suggested that honey, or honey diluted with water, is the best food for bees; it may be, but I have some doubts about it. The authors of the "*Maison Rustique*" object both to pure honey and to honey thus diluted, and they recommend in lieu of this a piece of old comb which contains some por-

tion of what is termed bee bread in it as being more substantial and more satisfying. Honey-and-water diet is of course a cheaper food, but no prudent apian practices economy in bee-keeping. If this mixture happens to get candied or touched by the frost mischief assuredly follows. A neighbour of mine, a very old bee-keeper, never gave his weak stocks any better food than a little powdered loaf sugar, which he threw into the mouth of the hive at night time. Even this little attention astonished me, fond as he was of his bees, for he maintained (and he was a shrewd man in his way and a public lecturer) that bee-feeding was a new-fangled notion utterly contrary to Nature—that, like the “flowers of the field” and the “fowls upon the mountains,” bees are dependant upon better care than ours, and therefore are better left alone. It is wonderful how old-fashioned bee-keepers differ upon this subject of food. Some weeks ago I was travelling through an out-of-the-way district in Essex, and I observed an old woman watching her bees. As she was a tenant of mine I took the liberty to ask her what she was so interested in. She replied that she was feeding her bees. Seeing saucers in front of the hives my curiosity was excited, so I asked for an explanation. She said that she had been giving her bees some tea. It seemed to me the strangest of all beverages for bees; and as I could scarcely avoid a smile she remarked that she always gave them tea, and that they took to it kindly enough and did very well upon it. The thought occurred to me, What bee-keeper has not given his bees boiled beer and sugar? Is one drink more ludicrous than the other? and if, as Sir John Lubbock showed last summer, bees are deficient in all moral qualities, it must be quite as well to keep temptation out of their way and teach them temperance if we teach them nothing else. The most common of food for bees is this mixture of sugar and beer, and there is no food which involves so much risk. Three seasons ago I lost more than twenty hives by indulging them too freely in this delicious drink, so I shall henceforth give up beer, though I have no intention to adopt tea as a substitute.

Barleysugar is always a safe and agreeable food for bees, and as its cost may be reckoned at little more than the value of the sugar it is not expensive. I took a hint some years ago for barley-sugar-making from Mr. Henry Taylor's “Bee-keeper's Manual,” which contains a good deal of useful information. To 2 lbs. of loaf sugar I add half a pint of water. These I boil for about twenty-five minutes. To ascertain whether it is boiled sufficiently drop a little of the boiling liquid on a cold plate. If it hardens quickly and becomes brittle it is boiled enough. Instead of using all water it is better to put about a fifth part of vinegar, which hastens the process without impairing the quality of the food. When sufficiently boiled pour it out gradually into a flat shallow dish previously besmeared with a little fresh butter to prevent it sticking to the platter. In a few minutes it will become sufficiently stiffened to admit of its being easily cut into strips with a pair of scissors for insertion into the mouth of the hive, or into a jar or glass for feeding at the top of the hive. It is scarcely worth while to give 1s. 6d. per pound for barleysugar when you can make it yourself for 6d. It may be well to look to the children while this manufacture is in hand, or there will be but little economy in it after all. When a considerable quantity of food is to be given in a short time the mixture I recommended in a former paper will be found to serve every purpose.—C. LILLEY.

A STEP IN ADVANCE.

ALLOW me to inform Mr. Pettigrew that the bar-framists have taken the “step in advance” as regards the enlargement of their hives by eking or nading. Last spring Mr. Abbott supplied me with some bar-frame boxes 6 inches deep, of the exact dimensions in other respects as the Woodbury hive, and thus adapted for either nadirs or ekes.

This is a step in advance of the old system of eking. The defect of that system was the very common tendency of the bees to fill the ekes and nadirs with drone comb. In the bar-frame this can be obviated by filling the frames with worker comb or wax sheets of the worker pattern. These 6-inch boxes can be used on the Stewarton system of storifying, and have this advantage over the octagon hives that all the frames are of the same size.

As a matter of experience my objection to the Stewarton system is, that the frames in the lower boxes are not accessible without the removal of the upper box or boxes. There is no system of enlarging straw hives which cannot equally and with more advantages be applied to frame hives. As a matter of fact bar-frame hives admit of greater facilities for expansion and contraction than any hive on the fixed-comb principle. And to expansion and contraction let me add extraction as another advantage which the bar-frame hive has over others, and is consequently—ANOTHER STEP IN ADVANCE.

OUR LETTER BOX.

PRESERVING EGGS (D.).—Mix 4 ozs. of glycerine with 2 ozs. of olive oil and rub the eggs with the mixture. When dry pack them in sand with their large ends downwards.

GREEN TREE FROG.—*Flora* asks for information how this animal is to be treated.

SEEDS FOR BIRDS (C. Sinclair).—Your mixture is far too varied. Canary and millet seeds in equal proportions are sufficient.

YOUNG BEES CAST OUT (Chas. Major).—As your hive is very strong in bees and the weather of late has not been favourable for honey gathering, the probability is great that the bees are short of food and have cast out some young ones in order to save themselves from starvation. In times of threatened starvation young drones are generally first sacrificed and cast out, and sometimes unhatched bee-brood is cast out in like manner. If liberal feeding does not at once prevent the bees from destroying their brood we may be certain that the brood is hurt or defective in some way, and therefore its removal from the hive is necessary. It is not an uncommon thing to find a few imperfect young bees thrown out of healthy prosperous hives, and sometimes young bees on escaping from their cells, or on being hatched, drop on to their boards and are there chilled to death. This takes place in hives not filled with comb. You say your hive has been fed liberally. If you have of late been giving it a pint of syrup daily the bees have not received more than enough for the wants of the hive during unfavourable weather, for both bees and brood consume a great deal in full hives.

COMB FOUNDATIONS (A. G.).—The sample of foundations you have sent is meant for bee-comb, not for drones; and it does not matter which end is fixed to the top of the hive or super, the bees will arrange and build the cells to dip in the right direction. The sample is a good one, and the sheets you have obtained are large enough, being 18 inches by 12. The weight of the sheets will depend on the perfection or thinness of their make, and the price will be regulated by the demand. One shilling and sixpence per sheet of 18 inches by 12 is certainly higher than was indicated in Mr. Hunter's remarks. Those who have foundations to sell should advertise them at the present time.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1878.	May.	Barometer at 39° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass		
			Inches.	deg.			deg.	W.	deg.	deg.	deg.	
We. 22		29.945	54.4	48.3	S.	52.9	52.9	3.2	40.0	114.0	38.5	0.243
Th. 23		29.499	52.5	51.0	S.	53.8	64.7	47.0	50.0	105.0	47.4	—
Fri. 24		29.304	55.6	51.7	S.W.	53.8	63.0	50.0	50.0	107.9	48.3	—
Sat. 25		29.653	54.0	49.0	N.N.W.	53.6	64.8	44.1	44.1	108.8	45.0	0.069
Sun. 26		29.796	53.8	51.2	N.W.	54.0	64.0	45.9	45.9	113.4	45.3	0.030
Mo. 27		29.801	54.2	51.7	S.W.	54.0	64.4	46.8	46.8	111.9	44.8	0.030
Tu. 28		29.811	59.2	55.1	S.E.	54.1	65.3	45.3	45.3	90.3	43.7	0.300
Means		29.687	54.8	51.1		53.7	64.3	45.6	45.6	107.3	44.2	0.032

REMARKS.

22nd.—Fine day throughout, but cool.
23rd.—Rain in early morning, afterwards fine but dull. [the day.
24th.—Fine morning, heavy shower 2.34 P.M., and showery during the rest of
25th.—Very bright early in the morning, showery between 11 A.M. and 1 P.M.;
fine afternoon and evening.
26th.—Fair day, few sharp showers; fine evening.
27th.—Showery in morning, fine afternoon and evening.
28th.—Dull but fair morning, heavy shower at 5 P.M., light rain during the evening, and heavy showers at night.

The week on the whole has been cold and showery, with low barometer and generally unsettled weather; but occasional bright sunshine has made the radiation temperature higher than last week, though low for the time of year. All other temperatures are below last week.—G. J. SYMONS.

COVENT GARDEN MARKET.—MAY 29.

LARGE quantities of foreign goods, such as Cherries, Apricots, and Tomatoes, are now arriving from the Continent, and have been sold at low prices. The first consignments of English Pears reached us to-day.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	1 sieve	2 6 to 6 0	Melons.....	each	6 0 12 0
Apricots.....	zen	1 0 3 0	Nectarines....	dozen	0 0 10 0
Cherries.....	1 lb	6 0 8 0	Oranges.....	100	3 0 10 0
Chestnuts.....	bushel	10 0 20 0	Peaches.....	dozen	12 0 30 0
Currents.....	1 sieve	0 0 0 0	Pears, kitchen..	dozen	0 0 0 0
Figs.....	dozen	12 0 30 0	dessert.....	dozen	0 0 0 0
Filberts.....	1 lb	0 9 1 0	Pine Apples....	1 lb	1 6 5 0
Cobs.....	1 lb	0 9 1 0	Piums.....	1 sieve	0 0 0 0
Gooseberries..	quart	1 0 2 0	Raspberries....	1 lb	0 0 0 0
Grapes, hothouse	1 lb	4 0 12 0	Strawberries..	1 lb	2 12 0
Lemons.....	100	6 0 10 0	Walnuts.....	bushel	5 0 8 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Leeks.....	bunch	0 2 0 4
Asparagus.....	bundle	2 0 6 0	Mushrooms....	potlote	0 2 0 4
Beans, Kidney forced	100	1 0 2 0	Mustard & Cress	punnet	0 2 0 4
Beet, Red.....	dozen	1 0 3 0	Onions.....	bushel	2 6 3 0
Broccoli.....	bundle	0 0 0 0	pickling.....	quart	4 0 6 0
Brussels Sprouts	1 sieve	0 0 0 0	Parsley.....	doz. bunches	2 0 0 0
Cabbage.....	dozen	1 0 2 0	Peas.....	quart	2 0 3 6
Carrots, new....	bunch	1 6 2 0	Potatoes, frame	1 lb	0 2 0 0
Capsicums.....	100	1 6 2 0	Potatoes.....	bushel	3 6 7 0
Caulliflowers....	dozen	3 0 6 0	Kidney.....	bushel	5 7 0 0
Celery.....	bundle	1 6 2 0	Radishes.....	doz. bunches	0 6 0 0
Coleworts.....	doz. bunches	2 0 4 0	Rhubarb.....	bundle	0 6 1 0
Cucumbers.....	each	6 1 0 0	Salsify.....	bundle	0 6 0 0
Endive.....	dozen	1 0 2 0	Scorzoneria....	bundle	1 0 0 0
Fennel.....	bunch	0 3 0 0	Seakale.....	basket	0 0 0 0
Garlic.....	1 lb	0 6 0 0	Shallots.....	1 lb	0 3 0 0
Herbs.....	bunch	0 2 0 0	Spinach.....	bushel	2 6 4 0
Lettuce.....	dozen	1 0 2 0	Turnips, new..	bunch	1 6 2 6

WEEKLY CALENDAR.

Day of Month	Day of Week	JUNE 6—12, 1878.	Average Temperature near London.			Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.		Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	h.	m.	h.	m.	h.	m.	h.	m.	Days.	m.		
6	TH		66.5	48.0	57.3	3	47	8	10	9	32	11	57	5	1	57	187
7	F	Easter Law Sittings end.	68.6	47.2	57.9	3	46	8	10	10	57	morn.		6	1	26	188
8	S	Oxford Trinity Term begins.	70.0	47.0	58.5	3	46	8	11	0	20	0	11	7	1	15	189
9	SUN	WHIT SUNDAY.	69.2	47.7	58.2	3	45	8	12	1	45	0	25	8	1	3	190
10	M	Bank Holiday. People's Flower Show at South	71.2	47.5	59.3	3	45	8	13	3	11	0	40	9	0	52	161
11	TU	[Kensington.	71.6	48.3	60.0	3	45	8	14	4	38	0	37	10	0	40	162
12	W	Royal Botanic Society—Second Summer Show.	70.9	49.1	60.0	3	44	8	14	6	6	1	18	11	0	28	163

From observations taken near London during forty-three years, the average day temperature of the week is 69.8°; and its night temperature 47.8°.

FERTILISING MELONS.

The main crop of Melons will soon be forming in many places a few remarks on setting the fruit may be acceptable to some of your readers at this time. As all Melon growers know, Melon plants produce male and female flowers. The latter are easily distinguished by having the embryo fruit attached to their base, while the former have not. The male flowers are produced first, as a rule, and very often in much greater numbers than the females. They are also often emitted from the axils of the leaves on the main stem, but the female flowers generally appear on the shoots some distance from the main stem.

When early Melons are desired the first female bloom that opens should be fertilised, but when there is no particular hurry none of the blooms should be touched until about half a dozen with embryo fruit at their base are open, then the whole of them should be fertilised together. The fruit then swells equally; but the notion that when one Melon is formed it is difficult to secure more on the same plant a week or two afterwards is not always correct. We have set fruit on the same plant some weeks between each other, but the last-formed fruits do not always swell so perfectly as the first.

The practical operation of fertilising consists in pulling off the male bloom, carefully removing all the petals, and rubbing the anthers gently in the centre of the fruit-bearing flower. It is the pollen that is conveyed from one flower to another that causes the fruit to set. Fertilising should never be done unless both flowers are fully open. It is not of much importance when it is done. We do ours from daylight until dark with perfect success. Syringing should be discontinued for a few days when the fruit is just beginning to form, but paths and other surfaces of the house may be watered to keep the atmosphere moist. Some say that if the roots are watered from the time the fruit is newly formed until it is the size of an egg it will become yellow and decay; according to our practice this is not correct, as we water the plants regularly with the fruit at all sizes, and the result is always more beneficial than injurious.

Where there are only a few Melon plants grown sure-fruited sorts should only be cultivated. In this respect there is great difference in some sorts; some plants grow luxuriantly, but produce no female blooms; others bear them in profusion. One of the shiest fruiting sorts we have this year is Carter's new Pine Cream. We have it in three different batches, in each of which it has grown satisfactorily, but as yet not one of them has produced a single female flower; others growing on each side have fruit as large as swans' eggs. Why it is sterile I cannot say; perhaps some of your readers will state their experience with it. We find Sutton's Royal Horticultural Prize produce female flowers much freer than Sutton's Hero of Bath. Eastnor Castle is a very free fruiter, and so is Reid's Hybrid. Little Heath is not equal to either of these in

producing female flowers, although it does better in a cool house or frame.

No Melon should be left to fertilise itself, although many fruits do set and swell after a fashion without any assistance, but such fruits seldom grow so quickly or become so large as those which have been properly fertilised. The first female bloom that opened on one of our Khiva Melon plants this year set itself. Ten days afterwards another fruit was set on the same plant by fertilising, and the latter is now as large again as the former, which shows that, although Melons may set themselves, they have not the advantages of 'properly fertilised fruits.'—A KITCHEN GARDENER.

THE ORCHARDS OF HEREFORD AND WORCESTER.

[The following excellent paper was contributed to the Annual May Conference of the Vegetarian Society by Mr. Baron de Webster, of Newland Court, Great Malvern.]

THOUGH differing in many other respects, these two contiguous counties are mostly reckoned as one as regards their fruit cultivation. Parts of Gloucestershire, Shropshire, and Warwickshire, which adjoin, are also included in this tract of orcharding.

Nurserymen are fond of stating in their catalogues that Apples do well in any soil. No doubt by such assertions they gain more orders, but it is a question whether the country has many more Apples. Some are bold enough to add that a deep friable loam suits them best. No doubt of it; and most other things as well. It is quite certain, however, that the most important condition of the soil for the Apple tree is depth, and this, in the neighbourhood above referred to, it thoroughly enjoys. The formation of the country, too, affords numberless sheltered hills and sunny slopes where fruit trees luxuriate as if in walled gardens.

There is no doubt that Worcestershire was enclosed and highly farmed at a very early period, and the cultivation of Apples and Pears must have been energetically carried on from the first. Herefordshire produces, perhaps, the best Apples, but very few Pears. The latter fruit gives one the best idea of the antiquity of this sort of cultivation. The remaining trees in the celebrated Barland Perry Orchard at Monksfield Farm, near Malvern, are stated by one writer to be six hundred years old. This is probably an exaggeration, but there are, doubtless, many trees scattered over a large area that must be several hundred years old. An Apple tree would hardly be of any use to the owner after a hundred years, but the Pears above referred to are still, many of them, most valuable. The ground, however, seems tired of them—and no wonder—and the grafts taken from them do no good.

Few Worcestershire homesteads do not possess a few of the Early Jennet trees, which still bear bountifully though of an enormous age. This and other descriptions of the earliest Pears ripen about the 1st of August, and in a good year help the farmer very much with his labour bill, so heavy at that time of year. The fruit is shaken down by boys, who climb into the trees with long hooked poles, and picked up by women underneath. Sacks and cider cloths are spread underneath to break the fall of the fruit. These

are the Pears that are so constantly seen in the early autumn hawked about the streets.

Hop and fruit cultivation often go hand in hand, the former demanding even more imperatively a deep soil. In the famous Team valley—one of the richest spots in England—the ground will apparently grow Hops for ever, the plantations being replenished as needed, and well cultivated. On the uplands, however, it is found necessary to change the Hop ground every twelve or fourteen years. The effect of Hop-growing on the soil, contrary to what one would suppose, is to render it almost as fertile for a renewal of general cropping as virgin soil. An old writer, indeed, drily remarks that “the greatest profit in Hop-growing is the breaking-up of the soil afterwards.” Up to the present time, whenever Hops were planted, an orchard was planted at the same time, as an economy of labour and ground. By the time the trees began to be prejudicial to the Hops it was time to remove the latter altogether. Of course the field remained arable, but that used to be thought no hindrance to the orchard; or rather, the orchard was thought no hindrance to the arable field. When it is considered how much finer the trees grow on an arable field, and that they are thus nearly always out of the way of cattle and horses, it will be seen that the disadvantages are compensated for. These are the spoiling of corn crops by the sun being kept from them (a trifling loss if the trees are not planted too closely), and the difficulty of cleaning the field when encumbered with trees. No difficulty exists as to ploughing, though a slight extra expense is entailed by the necessity of having three men or boys attending to the horses when the tree rows are being ploughed out, and also of having the ground just round the trunks dug with the spade. This is well done by any labourer for 1d. a tree.

When orchards are planted in grass land it is much better to have the young trees dug round for several years. They require to be fenced in on grass land with great care and expense, and at the time of the ripe fruit everything must be kept out of the field. It is far better, when planting an orchard on the green, to stock it for the first few years with nothing but sheep and young cattle. Horses and full-grown cattle will knock over any fencing, unless made so strong as almost to interfere with the growth of the trees.

The best and cheapest fencing for young trees is of this description: Plant firmly in the ground, in the shape of a triangle, three stout hop-poles (about as thick as a man's arm), and cut them off to about 4 or 5 feet high. They should stand about 1½ foot from the stock and lean outwards. To these nail wire netting as high as sheep can reach. You are then safe from sheep and game. If calves and young cattle are to be in the field, protect the wire netting again well with bushes fastened round with wire. If cattle and horses must come in, however, there is nothing for it but the old-fashioned heavy wooden cribs, which, besides being very cumbersome and expensive, are also detrimental to the prosperity of the tree. Their great posts make holes for the wet to accumulate and lodge in during the winter, and cracks to let the drought through in summer. Of course, in pruning, the object is to keep the branches growing outwards from a stem about 5 feet high.

Some farmers, who are convinced of the profits of growing fruit, are so particular on these points that they get slightly eccentric, to say the least, and discharge their men for the slightest infringement of their rules. An Apple tree can hardly become very profitable under fifteen years' growth at least, and it certainly is most aggravating to have a tree, or perhaps an orchard full, seriously damaged by purely avoidable causes after perhaps a most careful watch has been kept on them for ten or twelve years. After an orchard is once well started the only expense connected with it is the pruning, and that is about covered by the sale of the “brash.” Apple trees in Worcestershire often attain the size of an ordinary Oak, and a tree of a good sort will bear twenty-five bushels of Apples. One Pear tree will often make as much as two hundred gallons of perry.

It is very dangerous to lay down to grass an orchard that has hitherto been in tillage. It often causes all the trees to die. The ordinary one-year's course of seeds does not seem to hurt them, but a two-year's ley undoubtedly does. The decrease in the extent of orcharding and the inattention to fruit cultivation is very sad to see, and it will not be amiss for us to look into the reasons for it.

1. First of all we have the enormous and grossly unfair profits taken by the “middleman.” A pot (five pecks or 80 lbs.)

of fruit bought from a farmer for, say, 10s. is not sold to the public under 20s. or 25s. The usual system is for the farmer to take his fruit to one of the merchants in Worcester, who sells it for him on commission, in reality to middlemen in large towns; so (at least so he is told) the merchant, in paying the farmer, always professes to be getting only 6d. or so per pot out of the matter.

At the same time they carry on the business in other ways—buying fruit in large quantities on the trees or after being picked and keeping it themselves as a speculation. A large farmer with much business to transact cannot be always personally looking after the sale of every load of fruit, and most of them usually sell it in this way. All that the farmer does not want to keep for the winter he sends in as fast as it is picked, and notes the quantity in a book which is taken to the merchant, who signs it and adds the price he means to give for it, or sometimes the price he will give for the previous lot, this being still uncertain. The farmer can, if he is at any time dissatisfied, close up accounts; or, if he goes on all the year, can draw money as he wants it, sometimes drawing more than is due. At Christmas the book will be squared for the season. Sometimes the fruit is sold by auction on the trees, orchard by orchard. In the former way, of course, each individual lot of fruit is quite at the mercy of the merchant, and the farmer loses the full advantage of sudden and spasmodic rises in the market. On the other hand, he never has his fruit refused in a great flush. It is the profit made after the fruit has left the merchant and before it reaches the public that is so unfair. For instance, in one abundant year, when a pot of good fruit did not fetch more than 2s. in Worcester, enough to make an apple tart cost 1s. 8d. at Malvern. A commodious fruit market has been built at Worcester, but it does not seem to work in any beneficial way to the large growers. Farmers give up the business in disgust at the unfairly low prices they get for their fruit.

(To be continued.)

DOUBLE WALLFLOWERS.

It is gratifying to observe that this enjoyable old flower is not only not entirely neglected, but, on the contrary, is deemed worthy of having its merits recognised in contemporary garden literature. I allude now to single as well as double varieties. Since spring gardening has become in a measure fashionable Wallflowers have been grown in greater quantities than ever they have been grown before. No system of summer bedding, however popular it may be, will ever drive these homely old flowers from our gardens. Though not indigenous to England they have been with us for three centuries and have become naturalised, and wherever early and fragrant flowers are cherished there Wallflowers will be cultivated. So accommodating are the plants that I thought they would grow anywhere, but I am surprised to find by the account of Victoria Park on p. 373 that they will not succeed in the London parks. I am afraid those who, like myself, have practised wholly in the pure air of country districts do not, perhaps, fully appreciate our advantages. Certainly I should not be happy in gardening where I could not grow Wallflowers. I really regret that the Londoners cannot enjoy these flowers in their parks. They cannot, however, do without them, for I have seen waggonsloads piled up high like loads of hay, formed of crimson and bright yellow bunches of Wallflowers on their way to Covent Garden Market. I was glad to read, too, in your report of the Newcastle Spring Show that these common flowers were well grown in pots, exhibited and honoured. I have seen them flowered in pots in more than one private garden, and no plants flowering at the same time were more generally admired. Single Wallflowers are chiefly grown; it is these that have increased in numbers so considerably of late years. Double and semi-double varieties are not, however, entirely forgotten, but have found a friend in “W. J. M., Clonmel.”

As your correspondent truly states the semi-double varieties are raised from seed, and very good some of the German varieties are; but the truth must be told that others of them are very bad. The only safe way of perpetuating the really good semi-double varieties is by cuttings; while the real doubles—the old double red (Blood Wallflower) and the golden yellow cannot be increased in any other way. “W. J. M.” describes a mode of striking the cuttings which is for amateurs who have no heated frames, and he also gives sound cultural advice generally.

I have grown double Wallflowers for many years both for conservatory and garden decoration, and I adopt a speedier plan of striking cuttings than that described in the article referred to. I insert them as early as they can be obtained in pots of sandy soil and place them in heat, indeed giving the same treatment as cuttings of tender softwooded plants. In a week the cuttings emit roots and are then removed to a cool frame, and eventually to the open air. They are divided and planted out in June, and in the autumn are fine, bushy, flowering plants. I find few plants more easily raised and more valuable than double yellow Wallflowers for conservatory decoration in spring.—A. N. G.

DUCKS VERSUS SLUGS.

So many people having tried to write down the use of ducks in a garden I will attempt to state plainly all I know for and against them, and your readers can then judge for themselves on which side the balance inclines.

Last year three broods were hatched, and as I was a little timid the first of these had only a limited run and were shut up at night. The next brood had the whole run of the walled-in kitchen garden, about five acres, being only shut up at night till they were about a fortnight old, and continued to have it all to themselves till the third lot began to run about a good distance, when, not being likely to agree very well, the elder family were turned outside the garden walls where they had free access to two or three acres of other garden ground, an orchard and small ponds, and were allowed to roost where they liked. In from seven to ten weeks from hatching they were all fit for the spit, the Aylesbury being the first and best. It is right, however, to say that I have had no other true stock, the rest being cross-breeds. This year so far I have had three broods, but one mother proved a cannibal and only three of her progeny were saved; these were kindly taken under the wing of a foster-mother which already had eleven a fortnight old, and all have done well.

Now as to the manner of feeding, for herein lies the secret of making them useful, and I think it will be easily understood how it is that the evidence concerning them is so conflicting. Can it be wondered at by any reasonable person that if you feed them up with as much barleymeal, maize, or other heating food as they will eat, that they should want some green vegetable food to counteract the effects of it? But reverse the order of things: Give them plenty of fresh vegetable food—nothing suits better than boiled potatoes for the staple, with just a taste of meal mixed with it—when the weather is cold or the ducks are small, and in addition to this let them continually have green food in the water; they enjoy it so much better there that they will scarcely then be likely to touch it elsewhere. Sometimes, however, they do take to picking and stealing, and it is then difficult to reform them; but even when they do take to helping themselves, say to a row of Lettuces (they are fond of well-blanching salad) they do not generally spoil much but clear the row to the root if it is all tender as far as they go, and I believe their depredations are always brought about in the first place by improper feeding or neglect.

Well, now, what good do they do? As soon as ever day breaks they start off and work over a whole patch of Cabbages, Peas, or other crops in which slugs abound in a thorough workmanlike manner. I have seen them taking a breadth in perfect regularity, one on each side of a row, working it to the end and then turning back on other rows, picking up more slugs in half an hour than fifty men could possibly do. Besides it would be done before it was sufficiently light for men to see them, and actually at this time of year two or three hours before the workmen come. They like worms best, then soft slugs, but in the morning they do not object to the little hard black ones, such as I think no small bird will eat; and I am sorry to add that when they are hungry they do not even spare our good friend the worm-eating slug (*Testacella helioides*) or a good plump toad. This probably arises from jealousy and the fear of a slug and worm famine, but there is no immediate danger in that way. However, slugs are certainly not so plentiful by a long way as they were a few years ago. Then on mild mornings our kitchen garden walks were almost covered with the detestable little black things, and five or six men were often employed for two hours picking them up; now I am happy to say this is not necessary.

Someone suggested a few weeks ago shaking a lime bag round the garden. But these little hardy gentlemen are not

to be frightened by a lime bag; if their outer skin gets too much scorched they simply slip it off and start afresh. If you can catch them again with another hot dose before they get hard you may have a chance, but otherwise they are only slightly inconvenienced.—WM. TAYLOR.

P.S.—Some four or five years ago Longleat had a very unwelcome visitor in the shape of the American Water Weed, which rapidly overran most of the ponds, including the large lake below the mansion known as the Half-mile Pond. So thick had the weed grown that it was difficult to get a boat across or to pull a fish through when one was hooked. Decaying matter of all kinds was prevented floating away, for the weed was quite up to the surface and in some places above it. Matters began to assume a very serious aspect, for at times the decaying matter began to emit an unpleasant smell; and some began to be afraid that the beautiful lake, one of the main features of this fine park, would on sanitary grounds have to be dried up. Some young swans were procured, pinioned, and turned loose, and although it was believed that they would eat some of the weed, no one dreamed of a few birds making any visible improvement on such a large area; but they have increased now to about two dozen, and the surface of the water is perfectly clear for a foot or 18 inches down. They are not fed in any way, and their natural food, which was at one time so easy to procure, now involves a considerable amount of labour; so there is an addition to the charms of this place by the presence of the graceful swans, and the dreaded weed is not so dreadful after all.

HINTS ON LANDSCAPE GARDENING.—No. 5.

VILLA GARDENS.

EVERGREEN trees play an important part in villa gardens in the formation of screens for shelter as well as for privacy. Conifers are prime favourites in this section, and deservedly so. They do not, however, answer well in the smoke-laden atmosphere of the suburbs of large towns; yet even there they live and grow for some years, and would probably present a more flourishing aspect under the advantage of frequent washings of clean water thrown forcibly among the fine dense foliage by means of a syringe or garden engine. Here are a few possessing distinct characteristics and which have proved to be worthy of a place in the most select assortment. First comes *Abies canadensis*, beautiful as a shrub, still more so as a tree, and yet I could not indicate half a dozen gardens in which I have met with really fine examples of it. The noble specimens growing near the Screw Fountain at Alton Towers in Staffordshire are worthy of a special pilgrimage. Plant also that other fine Hemlock Spruce from Oregon, *Abies Albertiana*, of slender tapering growth, thin-branched, yet elegant; *Picea Nordmanniana*, best of all the Silver Firs; *Picea nobilis*, valuable for the bright glaucous tint of its foliage; *Pinus insignis*, so cheerful and warm-looking in winter with its dense clothing of lively green needles; *Cupressus Lawsoniana erecta viridis*, of a peculiar and pleasing shade of green, and forming a much more handsome tree than the original Lawson's Cypress, which, however, is quite worthy of a place; *Thuja borealis*, a dense dark green cone with pendant tipped branches, an especial favourite; as are also *Cedrus Deodara* and *C. Libani*. *Juniperus virginiana* forms a handsome, dense, tapering cone, growing freely; but it must be protected from the attacks of rabbits, which are very fond of its tender shoots, quite spoiling the plants when they are young. *Cupressus macrocarpa* from California is another fast-growing Conifer, dense, tapering, beautiful and distinct; and the elegant jointed Cypress, *Arthrotaxis selaginoides*, from Tasmania must certainly have a place. *Cryptomeria elegans* from Japan brings my selection up to a dozen of the very choicest Conifers taken from the two or three hundred with which we are now familiar in this country.

For every purpose to which an evergreen shrub or tree can be applied and for every situation, the common green Holly (*Ilex aquifolia*) attaining to a height of fully 30 feet in good soil, is, I think, the best, none other having the advantage of it except in height. Poor soil somewhat stunts its growth, but does not affect its health; shade and drip have no power to harm it, and it absolutely revels in bleak exposed situations where other trees can hardly exist. If you want a roadside hedge or screen, what can equal its dense growth armed at all points, the prickly foliage bidding defiance to would-be intruders? If you want a lawn clump it will furnish you with symmetrical specimens always clothed with handsome, glossy,

deep-green foliage, thick set yet wonderfully light and sprightly in effect, the play of light and shade among it being equally wonderful, every leaf partaking of it and contributing its own peculiar effect. The *Arbutus*, though not useful for so many purposes as the Holly, forms a worthy associate for it in lawn clumps. The kind most grown is the European species *Unedo*, always ornamental in early winter with its clusters of white flowers, and in sheltered situations is often laden at the same time with large crimson pendant berries. Its scarlet-flowered variety *Croomei* is worthy of a place, as also is *A. Rollissoni* for its large, long, white, waxy flower clusters. In the southern counties the scarlet-fruited evergreen *Benthamia fragifera* would make the third choice tree for our clump. It equals, and will I think eventually exceed, the Holly in height under the most favourable circumstances. Its growth is erect, and as the tree gains size it becomes so symmetrical as to be always ornamental. *Embothrium coccineum* is another choice tree for the sunny south. It is an evergreen that for brilliancy when in bloom surpasses all others yet in cultivation. The finest specimen of it in this country is thoroughly established in the garden of Mr. George Williams at Scorrier in the northern mining district of Cornwall. It is about 30 feet high, and its scarlet flowers are in full beauty in July and August. When I saw it at the end of last August enough flowers were still left to convey some faint idea of its gorgeous appearance when in full bloom. *Cerasus lusitanica*, the Portuguese Laurel, an old and well-tryed favourite, with its imposing mass of rich green foliage, worthily holds its own in our clump, as does *Laurus nobilis*, the aromatic Bay, and to enliven it with a rich mass of deep yellow we will introduce a Golden Queen Holly. *Quercus Suber*, the Cork Tree, ought not to be left out, for it is very ornamental, and does not often exceed a height of 20 to 30 feet in this country.

It is of course unnecessary that any one clump should include the whole of these trees, for every one of them under favourable circumstances becomes such fine specimens as to prove as effective in isolated positions as in clumps. Choose one or all of them according to your requirements, and I may safely venture to promise you will not be disappointed. It may be thought that the *Ilex* should be included in such a list, but the omission was intentional, its great height, size, and hardness rendering it more suitable for the formation of sheltering belts and screens.

Among evergreen shrubs I am desirous first of all to strongly recommend *Quercus glabra*, the Japanese Oak, to general notice. It forms a handsome shrub, somewhat spreading, and well clothed with stout, smooth, Laurel-like foliage. The finest specimen I have met with is in Messrs. Woods' nursery, and, speaking from memory, it is some 8 feet in height and as much in diameter. Of other shrubs let *Rhododendrons* predominate. Add to and mingle with them as you have space such choice and useful shrubs as *Escallonia macrantha* with glossy deep green foliage and bright pink flowers in summer and autumn; *Ligustrum japonicum*, that has been well described as "a very beautiful shrub, with leaves like an *Otaheite* Orange, and flowers like the *White Persian Lilac*;" *Mahonia aquifolia*, very hardy, but requiring good soil to bring it to full perfection—it is quite worthy of our best pains and care, as also are its allies the *Berberries*, of which *Darwinii*, so bright in April with its dense clusters of rich orange-yellow flowers, is a general favourite; *dulcis*, *stenophylla*, and *Wallichiana* are also good. *Desfontainea spinosa* with its Holly-like foliage and long tubular scarlet and yellow flowers is a great beauty, which cannot, however, be left out to winter in northern gardens. In the south it answers very well, and its flowers are in perfection in August and September. The finest examples I have met with established in the open air have not exceeded a height of 6 to 7 feet. Such large shrubs are by no means plentiful, nor in point of fact are plants of any size. I have seen a few clumps or rather beds of it composed of plants some 2 to 3 feet in height, that were very attractive from the uncommon and gay appearance of the flowers. For a small garden where choice shrubs are cherished it is admirably adapted for the front of borders or clumps. Every garden should also have at least one example of double Gorse, nobody having seen only the wild single variety can form a just conception of its beauty. For some weeks in spring it becomes one dense mass of deep golden yellow bloom, which exhales a perfume so powerful as literally to cloy the air with its sweetness. *Garrya elliptica* is another of our best shrubs, much neglected simply through ignorance of its value, and yet it has been in this country fifty years. It is very hardy and robust,

and is very ornamental in winter when its handsome catkins are produced. A little care in pruning is requisite to develop their full beauty, and they are then nearly a foot in length; unpruned trees, on the contrary, bear a profusion of catkins not longer than 3 or 4 inches. *Raphiolepis ovata* with its stout glossy foliage and spikes of white flowers, just now in full beauty, is also worthy of a prominent position. Then there are the *Pernettyas*, so neat and pretty with their white Heath-like flowers and pink berries; the bolder and more effective *Skimmias*, of which I would call especial attention to *Skimmia oblata*, of more vigorous growth than *S. japonica*, and with large brilliant scarlet berries; the striking *Cotoneaster Simmonsii* growing to a height of 8 feet and laden with clusters of gay berries in the early winter months; *Cistus ladaniferus*, so lovely when in flower; and the not so well known *C. roseus*, forming almost as large a bush as *ladaniferus*, and even more valuable for the longer duration of its large rosy-pink flowers, which are just now beginning to open on some plants which I raised from seed picked from wild plants near Nice. *C. formosus*, with its equally large spotted yellow flowers, also makes a pretty bush and is equally worthy of a place.

To enumerate the more common shrubs is unnecessary, but those known as American shrubs are much too important to be dismissed thus summarily, and later on a special paper must be devoted to them. The arrangement of shrubs and trees will also be treated of in due course.—EDWARD LUCKHURST.

REVIEW.

Home Culture of the Water-Cress. By SHIRLEY HIBBERD. London: E. W. Allen, 11, Ave Maria Lane, Paternoster Row.

THE author in his closing lines describes this little brochure of fifty pages as a "trifle, the inditing of which has been more of a recreation than labour." A work written in that spirit, and especially by Mr. Hibberd, is sure to be entertaining; the "trifle" in question is that and more—it is instructive. It is written in the author's free, jaunty, discursive style. The subject is certainly not a "dry" one, but it is not everyone who could have connected it so adroitly with ancient philosophers and modern poets—even as ancient as Homer and Virgil, even as modern as the author himself, who winds up with a song for the "pretty Water-cress girl."

About half of the essay is practical, and details the culture of Water-cress in pots, pans, troughs, frames, garden, and streamlet, with the view of its being produced all the year round fresh and untainted with sewage or any other impurity. Varieties of Cress and their merits are discussed; "a bit of botany" is provided, wherein is told what everybody is apparently not cognisant of, that the so-called *Nasturtium* of our gardens is not a *Nasturtium* at all, but a *Tropaeolum*. There are only four true British *Nasturtiums*—namely, the Water-cress (*Nasturtium officinale*), *N. sylvestre*, *N. palustre*, and *N. amphibium*. Several pages of "gossip" are incorporated, much of which will be new to the reader and all readable, for who besides our author would have connected Water-cresses with cannibalism? but he manages it in this way. Alluding to the early period when men began to eat Water-cress, it is remarked that they "must have been known and appreciated in those early days 'when wild in woods the noble savage ran,' and doubtless garnished the luncheon table of the palæolithic warrior who had caught and cooked a sinful brother who well deserved to become what the Fijians call 'boko.'"

Although hundreds of tons of Water-cresses are sold in the metropolis annually, we are told that the "cultivation of the Water-cress is quite a modern idea. The old English herbalists knew the plant and gloried in its virtues, but never dreamt there was money in it. In Parkinson's 'Theater' the plant is correctly though very briefly described, but as a wilding only. In the 'Paradisus' there is no mention of it, for the sufficient reason that it was not known as a garden plant in the time of Parkinson, nor for many years subsequently. The authorities all agree that it was first grown at Erfurt 'about the middle of the sixteenth century,' and the very distinctive character of the Erfurt variety ('Erfurt Sweet' or 'Erfurt Green'), which differs immensely from all the English varieties, suggests that it is, as a variety, the result of special influences long continued. Whether Nicholas Meissner, who is honourably remembered as the founder of Water-cress culture at Erfurt, began with this variety, finding it ready to his hand, or whether he made it, none can tell; but it is so distinct that it might with propriety be associated with his name as Meissner's Cress.

The still-noted water of Springhead, Northfleet, was the first centre of the industry in this country (so far as we have authentic records to guide us), and the beginning of the cultivation there only takes us back to 1808, when Mr. Bradbury took it in hand and established a trade in supplying the London markets."

We will now refer to the practical nature of the essay, which describes the mode of culture originated by Mr. Hibberd, and which has deservedly met with a large share of public favour. We have seen the pans of Cress as cultivated by the author, and have admired them; we can also testify to the delicacy and general excellence of the produce. The following extract and illustration will make the matter clear to those who are still unacquainted with this certain and simple mode of culture:—

"It is such an easy matter to grow the very finest Water-cresses, that a brief lesson will enable the reader, who at this moment, perhaps, knows nothing of the business, to make a good beginning and quickly discern the value of the ampli-

fications that follow. Although any common flower pot of any size or shape will answer the purpose, and the commonest soil that will grow a fairly good Cabbage will serve to fill it, yet a better mode of procedure is to employ common red ware seed pans 15 inches wide and 4 to 9 inches deep. This size affords room for a good body of soil, which is needed for a quick growth of tender Cresses, and they are not too large to be moved about conveniently. If the pans are shallow (say 4 inches deep) lay over the hole or holes in the bottom some flat oyster shells, and then fill with rich loam, such as would be used in the cultivation of Balsams or Fuchsias. A good compost may be made by mixing mellow loam with one-third its bulk of rotten hotbed manure, and a little rough grit, such as the sand sifted from sweepings of a gravel path, may be added. Press the soil rather firmly into the pans and pile it up into a convex surface like a pie, putting a little fine stuff on the top of it, and it is ready for planting. But if deep pans are employed (say 9 inches deep) put in a bottom of flat oyster shells as before, then some lumps of broken brick, or



Fig. 65.—WATER-CRESS IN PAN

chalk, or old mortar, to a depth of 3 inches, and fill up with rich soil and finish off pie fashion, making the work look neat.

"In this case, and in every case, small cuttings taken from the tops of fresh Cresses are to be preferred, and they should average an inch in length or less. Dib them in with a bit of stick or the finger, press them firm, and let them stand evenly from the centre to the edge about 3 inches apart. Then place the pans in water pans of suitable size, into which pour an inch depth of water, and stow all away in a frame or under the stage of a greenhouse, and water overhead twice a day at least, and oftener if convenient. If not distressed by sunshine or wind they will be well rooted in the course of three days, and the question will arise, What shall we do with them?

"Supposing we are in the month of May, they may be put out of doors in the full sun and have a depth of 2 inches of water, or, if the pans are deep, 3 or 4 inches, and they will really want no more attention, but it will always pay to water them overhead once a day, for quick growing produces the best sample."

For further particulars read the book.

DESTROYING SLUGS AND GRUBS.

SLUGS and other predatory vermin have been and still are unusually abundant, doing much damage to vegetable and other crops—indeed in some localities, particularly in the north, cereal crops are very yellow and patchy owing to the ravages

of slugs and grubs. In gardens these pests are more effectively combated than in fields, but the weapon employed must be certain and speedy. It is no use looking on, prompt means must be at once instituted. Some have great faith in birds (none more than we), but they for the most part are fonder of worms than slugs. Ducks, gulls, and fowls devour immense quantities; they also eat some vegetables. The lapwing or peewit and tern, on the other hand, do not eat vegetables, but subsist entirely upon the gardener's most assiduous enemies. We always have some of the former in the walled gardens, but they only require a certain quantity of food, hence the slugs and grubs are in excess, therefore we have to adopt such other remedies as experience has shown to be efficacious. Quicklime dusted over the plants late in the evening or early morning destroys all the slugs it falls upon, but it is necessary to repeat it, as when the lime becomes wet it is practically innocuous to the pests; besides, many will have been hatched or were beneath the surface when the lime was applied. Soot is also very much disliked by slugs, the plants being dusted therewith and a circle drawn around them will mostly save them from the slugs' attacks; it must be repeated from time to time, and is very valuable as a manure. Lime, however, is the best. Persistent dustings will assuredly free the ground of slugs sufficiently for all practical purposes. Lime, however, cannot always be used, especially in flower gardens, in which case baits may be laid of fresh brewers' grains, little heaps laid here and there about the borders near to the plants infested, and after dark a lantern

and a vessel containing salt will enable those that do not like picking up the slugs to do so, putting them into the vessel containing the salt and shaking up occasionally.

Grubs are worse to deal with than slugs. They hide in the ground and have tougher skins. An agent that dissolves readily, or that may be applied in liquid form to ensure certain and early action, is most suitable. Salt is usefully applied at the rate of twenty bushels per acre in case of ambury in Brassicas and finger-and-toes in Turnips. It should be applied at the time of sowing the seed or shortly afterwards, as when the plants are large the salt is of very little use then, as the maggot is safely embedded in the root portion of the plant. Nitrate of soda is more powerful than salt, and may be applied in liquid form—1 lb. to twelve gallons of water, which is sufficient for a rod (30½ square yards); or that quantity applied evenly to that extent of ground prior to putting in the crop or soon afterwards, for it is injurious if resting on the foliage of plants.

Paraffin is certain destruction to every kind of garden pest—everything it comes into contact with it kills, not excepting mealy bug and scale in plant stoves down to grub in Onions. Being an oil, its gravity is less than water, and it floats on the surface, and is difficult to mix with water; however, by keeping stirred, or, better, forced into the water with a syringe, one squirt into the watering pot and alternate ones upon the plants, it may be kept tolerably well mixed. It is a sufficient application to thoroughly wet the plants, and in doing so the surface soil also will be made wet. No more must be attempted, or the remedy is worse than the disease. A wineglassful is a proper quantity to four gallons of water. The quantity must not be exceeded, nor must it be applied other than well mixed with the water. Neither Onion nor Carrot maggots, nor yet Celery fly, can endure it, nor can caterpillars withstand its effects; it also drives away ants, and wasps die if it be poured into their nests.—A.

ROYAL HORTICULTURAL SOCIETY.

JUNE 4TH.

AFTER the extensive and prolonged display of last week it was not surprising to find the meeting on this occasion a small one. Both the objects exhibited and the number of horticulturists were alike limited, yet some interesting plants were submitted to the Committee, and several certificates were awarded. Fruit was represented by a few Melons and Strawberries, and vegetables by Asparagus and Lettuce.

FRUIT COMMITTEE.—H. Webb, Esq., V.P., in the chair. Mr. Allen, gardener to Lord Suffield, Gunton Park, sent a very fine dish of Asparagus grown on the French system. The lower portion of the stem was blanched to the extent of 8 inches, the tips to the extent of 3 inches being green. A cultural commendation was awarded. Mr. J. Davidson, gardener to Mrs. Marson, Highfield Park, Hants, exhibited very tall examples of Suttons' Superb White Cos Lettuce, which were passed by the Committee. Mr. J. Manderson, Ottershaw Park, Chertsey, sent a seedling Melon, but it did not merit any award. Mr. Atkins, gardener to Col. Loyd Lindsay, Lockinge Park, Wantage, sent some large and fine-looking Melons, but they were not considered superior to others in cultivation. Messrs. Paul & Son, Old Nurseries, Chesham, sent Strawberry Pauline, but it was coarse and deficient in flavour. Mr. W. Thomson, Auchinraith, Blantyre, sent examples of a seedling Rhubarb, which was no improvement on others in cultivation. Messrs. Blake & McKenzie exhibited Tebbes' Universal Travelling Pot (figured on page 171, vol. xxxiii.), which was highly commended by the Committee. Tebbes' metallic card labels were also exhibited; they are simple, economical, and durable. Mr. Elliott exhibited his "Summer Cloud" for shading. It breaks the rays of the sun without seriously obstructing the light, and is a suitable application for glass where slight shade is required for the plants beneath. Amies' manure was exhibited, together with photographs of some remarkable crops of Cucumbers grown by Mr. Cooling of Derby with the aid of this manure.

FLORAL COMMITTEE.—Dr. Denny in the chair. Messrs. James Veitch & Sons exhibited a small and very choice group of plants. First-class certificates were awarded for *Platycerium Hillii*, one of the most stately and distinct of the Stag's-horn Ferns, a figure of which was given on page 395; for *Xeronema Moorei*, a striking plant resembling an Irid in its growth and foliage. The flower spike is nearly 8 feet long, and terminates in a brush-like head composed of a mass of scarlet stamens. It was the last of the late Mr. J. G. Veitch's introductions from New Caledonia. Also for *Adiantum cyclosorum*, a slender-growing Fern of great elegance. The fronds somewhat resemble those of *A. concinnum* latum, but are more spreading and graceful; and the pinnae, which are thinly arranged, are faintly suffused with pink. Messrs. Veitch also exhibited the fine *Hemanthus Kalbreyeri*, with a head 8 inches in diameter of brilliant flowers; the bright yellow and very striking *Ismene Amacais integræ*, the cup exceeding 2 inches in diameter, and having five radiating stripes of reddish brown in its

interior; also *Aërides Domitii*, the result of a cross between *A. affine* and *A. Fieldingi*, very fine; *Lilium concolor luteum*, the plant being 6 inches high and terminated in a large yellow flower; *Croton Hanburyanus*, the leaves being 2 inches broad and a foot long, the prevailing colours being brilliant yellow and bright green; it is one of the most effective of the family to which it belongs; the floriferous and highly attractive *Rhododendron Crown Princess of Germany*, which was so greatly admired last week by their Imperial Highnesses; and a splendid pan of *Nertera depressa*.

Mr. B. S. Williams exhibited *Phoenix canariense*, a dwarf and slender-growing Palm with narrow glossy leaflets and very elegant; *Asplenium horridum*, with erect and bold-looking fronds, rachis brown and woolly; *Eranthemum variabile*, small plants, much coloured after the manner of *Alternanthera amœna*; *Panax elegantissimum*, a very suitable plant for table decoration, the foliage is finely cut and gracefully recurved; and two Orchids—*Epidendrum trachychilum*, with cream-coloured sepals and white-mottled violet, very fragrant, and *Maxillaria grandiflora*, the flowers being 1½ inch in diameter and of great substance; the sepals and petals are flesh white, and labellum white, brown, and yellow. It will evidently continue long in beauty, and is very fragrant.

Mr. Green, gardener to Sir G. Macleay, Bart., Bletchingley, sent a singular assemblage of plants and flowers, consisting of *Aristolochia orithocephala*, richly marbled and spotted; *Gardenia Stanleyana*, a striking trumpet-shaped flower, which often requires a year to expand after the flower buds are visible; *Nidularium Scheremetiana*, a Tillandsia-like plant with violet flowers; *Posoqueria longiflora*, flowers and tube white, the latter 6 inches in length, the flower bearing some resemblance to a very large Bouvardia; *Carolinea insignis*, a West Indian shrub—the foliage is a foot in length and 4 inches in width, and the flower, measuring from the tips of the four sepals, was nearly a foot in diameter. The interior of the sepals is white, the centre being composed of long white stamens tipped with scarlet, somewhat resembling a Cactus. It is a remarkable flower and seldom seen)—*Marica gracilis*, a singular Irid; *Lathyrus Drummondii*, a fine hardy Pea with bright carmine flowers; *Libertia formosa*, a charming white flower with yellow stamens; and *Gunnera manicata*, fruit and young leaf, the latter singularly striking. First-class certificates were awarded for the *Gunnera* and *Lathyrus*, and a vote of thanks for the entire collection, which was a highly interesting one. Mr. R. Dean, Ealing, also had a first-class certificate for *Lathyrus Drummondii*. The plant was exhibited in a pot and trained to sticks. It was covered with reddish carmine flowers. This is one of the most distinct and attractive of the perennial Peas, and is well worthy of culture both in pots and borders. The same exhibitor sent cut blooms of striped *Antirrhinum*.

Mr. G. F. Wilson, F.R.S., exhibited *Polygonatum giganteum*, the North American Solomon's Seal, a stately plant growing to the height of 6 feet; also *Brodiaea volubilis* and the bright yellow *Cyclobothra pulchella*, and received a vote of thanks. Mr. H. Boller, 78, South Row, Kensal New Town, was also awarded a vote of thanks for a rustic stand having its base planted with dwarf succulents, and the top occupied with a drooping plant of *Othonna crassifolia*.

Mr. Pithers, Munster House Gardens, Fulham, exhibited tuberous *Begonia Illuminator*, having the brightest scarlet suffused orange-coloured flowers that we have seen. It is a fine decorative variety, but the plant was somewhat drawn. Mr. J. Kingsbury, Bevois Valley Nursery, Southampton, exhibited seedling *Petunias* and *Pelargoniums*, also *Coleus Empress of India*, richly marbled; and Mr. Donald Birchley exhibited yellow *Picotee Jane Birchley*.

From the Society's Gardens came fine examples of *Orchis foliosa*, also *Saxifraga nepalensis*, *Veronica brisicifolia*, a dwarf plant resembling a *Pimelea* and powerfully perfumed, also *Rhododendron hyacinthiflorum*. The trusses are large, and are composed of large numbers of small double flowers, colour purplish lilac; distinct and attractive.

NOTES AND GLEANINGS.

AN extensive Kentish cultivator draws our attention to what he describes as the MYSTERIOUS DISAPPEARANCE OF FRUIT. He is sanguine that if those who had such good reason a month ago to report so favourably of the fruit prospects will now examine their trees carefully they will have a very "different tale to tell." Fruit of all kinds, our informant states, has gone from the trees like magic. Frost, he states, is not the cause, nor are insects; for there has been no severe frost in his district, and the trees are much less free from insects than they have often been in previous years. We regret very much to hear such unfavourable tidings, coming, as they do, from a great fruit-growing district and from a successful cultivator and close observer. We can suggest one cause for the loss alluded to—namely, the extraordinary exuberance of the trees. It is well known that Peach trees which grow luxuriantly do not carry their crops so well as

do trees of moderate growth, and we suspect that excessive luxuriance, especially when it follows a season during which the wood was not well matured, has the same effect on more hardy fruits. We shall be glad to hear if the evil complained—for an evil it is—is common to other districts of the country.

— ON visiting the GREAT SUMMER SHOW AT SOUTH KENSINGTON on the fourth day (Friday) we were much impressed with the freshness of the plants and flowers. Although the weather during the Show was inclement, the temperature being low and showers prevalent, yet the plants did not appear to have sustained any injury by their retention in the tents. Some of the Roses were somewhat faded, but others were, if possible, finer than on the first day of the Show—notably *La France* in Mr. Turner's and *Alfred Colomb* in Messrs. Paul's collection, both of which were magnificent on Friday. The Orchids, too, were almost without bluishness, and the Azaleas remarkably fresh. In the amateurs' class for eight Azaleas Mr. Ratty had the first prize, and not Mr. Child as stated in our report of the Show.

— A MEETING of the General Committee of the NATIONAL ROSE SOCIETY was held at the Horticultural Club on the 28th ult., when the arrangements for the Exhibitions were made, and rules for judging, which we hope to publish shortly, were agreed upon. The following were nominated as Judges for the Crystal Palace Show:—The Revs. Canon Hole, E. N. Pochin, C. P. Peach, J. B. M. Camm, and H. Honeywood D'Ombra; Capt. Christy, F. J. Jowitt, R. G. N. Baker, and J. H. Arkwright, Esqrs.; and Messrs. J. Cranston, B. R. Cant, J. Cutbush, J. Mitchell, George Paul, William Paul, George Prince, Charles Turner, and H. Francis.

— WE have received the schedule of prizes of the GRAND NATIONAL HORTICULTURAL EXHIBITION, which opens in the Botanic Gardens, Manchester, on June 7th, and continues until the evening of the 14th. Prizes exceeding £1250 are offered—namely, £512 10s. in forty classes for amateurs; £610 in thirty-one classes for nurserymen, and £20 in an open class for the best collection of *Sarracenias*, *Nepenthes*, &c. In the amateurs' class for twenty stove and greenhouse plants the prizes are £35, £20, and £15; and for sixteen plants, eight in flower, £20, £15, and £10 are offered. The provision in this section is also very liberal for Orchids, Azaleas, Ferns, and *Ericas*; and £10, £6, and £4 are provided for collections of fruit. The Veitch memorial medal and a prize of £5 are offered for the best specimen Orchid. In the nurserymen's section are £50 in three prizes for one hundred hardy *Rhododendrons* in flower, and prizes of the same value for twelve large Roses, also for a collection of plants arranged for effect in a space 25 feet long by 15 feet wide. Many good prizes are also provided for stove and greenhouse plants, Orchids, *Rhododendrons*, and hardy shrubs. Such liberal provision, together with the high repute of the Manchester Botanical and Horticultural Society, together with the excellent management of the Exhibition by Mr. Bruce Findlay, ought to attract exhibitors and visitors from all parts of the country. The rules are commendably concise and explicit, the first being that "specimens may be exhibited from any part of the world and by any person, either for sale or for competition, or may be marked 'not for competition';" and "the prizes will be paid on the last day of the Exhibition." Thus the greatest possible inducements are offered to secure competition and a show of great magnitude.

— THE REIGATE ROSE SHOW has been fixed for July 6th, and will be again held by invitation in the grounds of A. J. Waterlow, Esq., of Great Doods, Reigate. The Society has this year thrown open the highest class to the amateur public. Four prizes of the respective values of £4, £3, £2, and £1 are offered in the new schedule for competition by any of the amateur Rose-growers in England who may desire to exhibit for the best twenty-four of any kind. The rest of the schedule, confined to members, is much as before.

— WE are informed that the Hon. and Rev. J. T. Boscawen has added £5 to Mr. W. Robinson's first year's PRIZES FOR ASPARAGUS. The first competition will be held for these prizes at the Bath and West of England Society's Show in 1881. Prizes will be offered for market-garden-grown Asparagus, as distinct from that grown in private gardens.

— ONE of the most cheerful displays of SPRING FLOWERS that we have recently seen is in the nursery of Messrs. Phippen and Robinson at Reading. Especially striking are the fine edgings of *Dactylis glomerata variegata*, which is employed

there almost wholly for spring decoration, and is extremely elegant. The flowering plants are chiefly composed of *Limnanthes Douglasii*, *Silene pendula compacta*, Daisies, and *Forget-me-nots*. In the nursery hardy flowers are cherished and cultivated, and we saw the first plant of *Arundo conspicua* that has come under our notice. About a dozen large houses are devoted to the growth of plants for decoration, and on the roofs of some of the houses *Stephanotis*, *Maréchal Niel* and *Gloire de Dijon* Roses are growing luxuriantly. That this nursery has been established and furnished so well in fifteen years is evidence that flowers are appreciated at Reading, and the active partner of the firm is an industrious and enterprising horticulturist.

— UPPINGHAM SHOW.—The school week of cricket, &c., at Uppingham is to be again most suitably enlivened by a flower show; for there is no surer way of gathering together the *élite* of a neighbourhood than a well-managed exhibition. At this Show we find by the schedule that liberal prizes are to be offered for cut Roses; and as the date (July 18th) suits the midlands we have no doubt that a fine display will be made, and we hope to record in due time a successful exhibition.

— WE last week referred to Mr. McIntosh's fine collection of *Rhododendrons*. Equally worthy of note is the rapid and excellent manner in which the capital ranges of new glass houses erected by Mr. Gray of Chelsea have been furnished. The condition of the VINES AT DUNDEEVAN planted last year reflects great credit on Mr. Taylor the gardener. The rods are not, as too often is the case, denuded of foliage near their base, but shoots are permitted to grow moderately down to the ground; this is an important point in securing a free thickening of the stem, and consequently ample sap-courses for the sustenance of the Vines and crop. The lower laterals of the Vines intended for fruiting are also treated more liberally than we often find them. They are not stopped to any particular leaf, but the principle is adopted of permitting the lower laterals to exceed in length those immediately above them, so that the appearance of the Vines may be described as a flattened pyramid, each Vine having a foliage base of nearly 5 feet. There need be no fear that Vines so trained will not produce bunches as large at the bottom of the rafters as at the top; it is undoubtedly the right principle to adopt in the training of Vines, and is worthy of mention at the present time and of extended application. Lilies and some other features of this admirably kept garden are worthy of attention, and will form the subject of a future "note."

— ALTHOUGH the noble GRAPE THE DUKE OF BUCCLEUGH has not succeeded with all cultivators, and it is commonly regarded as being a shy bearer, it is the reverse of shy at Chiswick. In a trial house of young Vines the Duke is producing bunches quite as freely as any other variety, and no Vine in the house is making shorter-jointed wood. The character of the Vine in those respects will be sufficiently apparent when it is stated that on a length of rod not exceeding 2½ feet there are ten bunches, all of which promise to be of good size. It will be interesting to observe how the crop progresses and finishes under Mr. Barron's care in a house containing nearly all the popular varieties of Grapes. Dr. Hogg is showing a magnificent crop, as also is Mrs. Pince; Black Hamburg, Royal Ascot, Golden Queen, Venn's Muscat, indeed all the varieties in the house, are in a highly promising state. They have never been nearly so fine before, and the borders have never had nearly so much water as during the past and present season. It is to copious waterings more than to any other cause that Mr. Barron attributes the excellent condition of the Vines and crop.

— WE are glad to learn that H.R.H. the Prince of Wales has been pleased to appoint Mr. John Wills one of the jurors of the horticultural section of the PARIS UNIVERSAL EXHIBITION. The shows for June consist of Orchids and Pelargoniums, both stove and greenhouse plants, open air ligneous plants, Roses, and forced vegetables and fruits, from the 1st to the 15th inst.; and from the 16th to the 30th of Roses, Palms, and Pelargoniums, Orchids, both stove and greenhouse plants, open air herbaceous plants, vegetables of the season, exotic and indigenous fruits, &c.

— WE observed the other day in the conservatory of Mr. Clifton, The Hollies, Fulham, a most attractive display of IRISES, LILYUMS, and WATSONIAS. Amongst those handsome plants the following are noticeable:—*Irises*: Dr. Margottin, Hassam Assam, Empress Eugénie, Susiana, Annie Jane, Leopoldine, Prince of Wales, Victorine, Amena, Darius, and

Miss Nightingale. Amongst *Watsonias Brevifolia* was the most noticeable, but many others are good. *Liliums* in flower are *L. giganteum* between 5 and 6 feet in height with six fine flowers, the expanded foliage also covering the pot; *Lancifolium rubrum* with fourteen flowers opening on one stem; *auratum* in quantity; *pardalinum*, *neilgherrense*, *Krameri*, *Humboldtii*, and *Brownii*. In this interesting garden may also be found several *Pompon Dahlias* flowering in a sheltered position as freely as they are usually seen in August.

— AT the POPULAR FLOWER SHOW to be held in the Royal Horticultural Society's gardens on Whit-Monday twelve medals and liberal money prizes will be awarded to artisans, &c., for collections of plants grown in the City of London, also for collections grown within a radius of five miles from the General Post Office and for single window plants, also for wild flowers gathered and arranged by children attending the various public and elementary schools. Messrs. Sutton & Sons, Reading, offer prizes for collections of vegetables. Prizes are further provided to be competed for by the London florists and growers for Covent Garden Market, the chief of which are £10, £7, and £5 for a group of plants arranged for effect in a space not exceeding 300 square feet; and £7, £5, and £2 10s. for a group of Palms and Ferns in a space not exceeding 200 square feet. Prizes are also provided for show and zonal *Pelargoniums*, *Fuchsias*, *Musk*, *Mignonette*, *Stocks*, cut flowers, bouquets, &c., and for any exhibits not provided for in the classes the Judges have one gold, two silver, and three bronze medals at their disposal. A very attractive display is anticipated, and such as will afford both pleasure and instruction to the thousands who will have the privilege of inspecting it for the small fee of 2d. each. The gardens will be open to the public at ten o'clock, and they will be admitted to the Show as soon as the judging is completed.

— AT a general Meeting of the Royal Horticultural Society held on the 4th inst., Lord Alfred S. Churchill, V.P., in the chair, the following CANDIDATES WERE ELECTED FELLOWS of the Society—viz., Victor Buckley, Lawrence Trent Cave, George P. Craven, Joseph Davis, Charles Dorman, John Downie, Samuel Edwards, Mrs. Fraser, Charles Godson, William H. Hilton, Lady Huntingfield, Colonel F. H. Rich, R.E., J. Rimington, Mrs. Duncan Roberts, Mrs. L. V. Swaine, C. G. Wilkinson, Mrs. Wyman, &c. J. R. Hale and Mrs. Hale were admitted guinea members.

— THE following, says Mr. Robert Coupar in the "Journal of Forestry," are the dimensions of a gigantic specimen of the SILVER FIR which is growing within 400 yards of Kinnaird Castle, Forfarshire, the seat of the Earl of Southesk. It is about 80 feet in height, and measures 22 feet 6 inches in circumference of stem at 1 foot from the ground; measuring 14 feet 11 inches in girth at 3 feet from the ground. At 5 feet from the base a large limb springs from the stem, measuring 9 feet 3 inches in girth at a foot from the point of junction. Excepting this large limb, the tree has a clear stem of about 18 feet in height to where it divides into several limbs, forming a large branching top. The spread of the branches averages about 56 feet in diameter, having an entire circumference of 176 feet, and forming a fine shapely head.

— A SERIES OF COLOURED PLATES of plants and flowers prepared by Mr. Fitch from specimens in the nurseries of Mr. B. S. Williams have been handed to us for inspection. They consist of admirably executed portraits of *Crotons*, *Pelargoniums*, *Azaleas*, &c., and afford evidence alike of the skill of the artist and of the excellence of the stores of the famed Holloway establishment.

FRUIT PROSPECTS.

I REGRET to say that I am not sanguine as to the present being an unusually good fruit year. Certainly in our west midland counties the statement of the writer of "Notes on Villa and Suburban Gardening" on page 378 cannot be endorsed, that "the prospects of most kinds of fruit could scarcely be better;" for while among small fruits *Strawberries* everywhere bid fair to be a prodigious crop, and *Black Currants* also promise well, *Red* and *White Currants* and *Raspberries* are not up to the average. *Gooseberries* also in my own warm and sheltered wall garden are for the first time in my remembrance an absolute failure, and in most gardens I have seen not half a crop. *Morello Cherries* are, as usual, setting well, but all other varieties, as a rule, have not set well, and promise a poor return. The same remarks will apply to *Plums*.

Some very early sorts in my garden grown against a south wall will give a partial crop, but most standards, especially *Damsons*, will again this year as last be almost a total failure.

As regards the prospects of the Apple and Pear crop it will be unusually interesting for growers to compare notes, as all the evidence as yet on record is very conflicting. On one point all must agree, that never could there have been a more beautiful and plentiful blossom; but the fruit is sadly disproportionate thereto. This disappointment should not be attributed, I believe, entirely to the nipping frosts we had in April, but to the long-continued wet and sunless weather, generating a condition of atmosphere favourable, with a fairly high and even temperature, to vegetable growth, but acting most unfavourably in an imperfect and barren germination. That this has been the case I am quite certain from the decimation of my late varieties of *Peaches*, *Nectarines*, and *pyramid Pears*, which shrivelled up and dropped off the trees quite an appreciable time after a good and safe crop apparently might have been expected.

I am afraid from what I have seen, travelling about a good deal in our west midland districts, that the above remarks hold generally true. Here and there enormous crops of *Peaches*, *Nectarines*, and occasionally, but very rarely, *Apricots* are to be seen (my own crop of *Apricots* is above average); but as a rule, as regards wall fruits impartial successes or total failures must be recorded. I freely make use of tiffany, but I find no protection so inexpensive and successful as the naturally flat, air-pervious, arching boughs of the *Yew* when due care is taken that no displacement from their position takes place to the certain injury of the tender shoots on the surface of the wall. This mode has already been mentioned in the Journal in terms of high commendation. I mention my own experience as bearing out most favourably what the writer then stated.

As regards orchard fruit in the west of England—and I am now writing from Devonshire—it is far too early to venture on a decided opinion, but I should say the crop would be above average. I take this opportunity of stating that I have never seen the old historic varieties of Apples, so many of which were laid low in the calamitous cyclone of last year, showing so prodigal a wealth of bloom, especially the *Fox-welp*; the wet summer, short spell of dry weather in autumn, and fine open winter of last year apparently exactly suiting these wonderful veterans, whose stubby lichen-sheathed summits are perfectly covered with blossom, though verily they must have been standing in their present position over two hundred years, perhaps before the days of the gentle and classic Evelyn, yet notwithstanding I much fear we shall not have half a crop of fruit.—THE HEREFORDSHIRE INCUMBENT.

BORONIAS.

How often do we hear the remark by gardeners that New Holland and Cape plants are out of fashion and not liked nowadays! But what is the cause of this? Why should they not be as well liked as formerly? The answer I feel inclined to give is that in many instances it is the gardener's own fault. A short time since, having furnished a nice spray of *Boronia Drummondii alba* for the decoration of a young lady's hair, it became quite the rage. No one could make out what it could be, whilst everyone admired its elegant appearance. From its use on this particular occasion several individuals have determined to add it to their collections; and thus I believe were these beautiful plants more frequently seen they would have as strong charms for the plant-growing public as ever.

In addition to the beautiful species and varieties which have long been known to the horticulturist, the Messrs. Rollisson and Sons of Tooting, and Messrs. Veitch & Sons of Chelsea, have rendered good service by the recent introduction of two species. The first-named firm brought to our notice *B. megastigma*, which, it is true, is not a showy flower, the outside being dark chocolate brown, within yellow. The flowers, however, hang in profusion like large beads upon the slender branches, and yield a powerful yet delicious fragrance like *Violets*, a small branch when cut being sufficient to perfume a large room; for this purpose *B. megastigma* is really invaluable, and those who are the fortunate possessors of this plant will seldom be without a small twig in the drawing-room or boudoir. The second-named florists were the introducers of *B. clatior*, a very fine species, somewhat robust in growth, and well furnished with foliage. The flowers are large for a *Boronia*, produced very freely, and bright rosy red

in colour, rendering it highly ornamental and extremely valuable as a greenhouse decorative plant; whilst looking upon it from an exhibition point of view, it is one of the very finest. Amongst older species we have *B. serrulata*, a charming plant with smooth, bright green, trapezoid leaves, and sweet-scented rose-coloured flowers. Truly a gem, but withal somewhat difficult to grow; indeed, with truth it may be said the most difficult species to cultivate in the whole genus. Another fine species is *B. pinnata*; the foliage is narrow, dark green, and divided into several pairs of segments; flowers large, pink,

sweet-scented, produced in great profusion, and last a long time in perfection. In *B. tetrandra* we have a free growing and flowering kind, with pinnate leaves and moderate-sized light pink or flesh-coloured flowers, which, however, do not last very long in full beauty. The last, though not by any means the least in point of beauty, we shall here mention is *B. Drummondii* and its variety called *alba*. In habit of growth it is more compact than the two last-named species. The plant when healthy is completely enveloped by large bright rosy pink flowers, which remain a very long time in perfection.



Fig. 66.—*BORONIA DRUMMONDII ALBA*.

The white variety is the exact counterpart of the species except in colour. For the opportunity of figuring this plant we are indebted to the courtesy of the Messrs. Rollisson & Sons of Tooting, in whose extensive nursery many rare and beautiful Cape and New Holland plants may be found.

Before leaving the subject a word or two about the cultivation of *Boronias* may be of service to some readers of the Journal. All the species may be increased by cuttings; they should be grown in good fibrous sandy peat, and be potted firmly like the genus *Erica*, the pots being well drained and the plants treated to an abundant supply of water during the summer season. During winter care must be taken with the water supply, and plenty of air should be given, but avoid cold and

cutting winds. After flowering the plants should be stopped and kept a little close until growth commences, when they may be repotted and encouraged in every possible manner to produce good growth for the next season's display.

AURICULAS AT FAILSWORTH.

THE day after the Manchester Show I again made a visit to Failsworth for the purpose of seeing the Auriculas at Mr. Jonathan Booth's, one of the few places where the newer and choicer varieties are to be picked up; and, more fortunate than last year, I had not, knowing my ground, to make the long tramp that I did then; and having made Mr. Booth's

acquaintance at the Show I was able to arrange so as to find him at home and have a talk together over our favourites.

As I mentioned last year, Mr. Booth grows his plants in a span-roofed pit heated with hot water; and the great convenience of this method of growing led me to alter my pit and turn it also into a span-roofed one, but not adding the heating apparatus. This is a modern innovation in Auricula growing; and whatever may be its desirability or necessity in the more leaden skies of the north, I do not think it can be either one or the other down south, and I rather fancy that even those who use it would rather dispense with it if they could. But the pit itself is a great advantage, especially to those who have passed their sixth decade, to be able to look their plants over at all times without fear of cold or wet; and hence I shall always look upon my visit to Failsworth last year as a turning point in my cultivation of Auriculas.

Mr. Booth's collection is an extensive one—constantly changing indeed, as those of all growers for sale must change, but the vacancies by sales in which he is continually filling up. And here let me say that it is a mistake to suppose that it is difficult to purchase these plants. There are some of the newer and scarcer kinds which are not to be had, but there are not more than half a dozen in this condition, while there are numbers which can be purchased for a comparatively small sum which are not only beautiful but also winning kinds, and no one need be frightened by the bugbear that they are not to be had.

It is remarkable, too, that notwithstanding the new varieties the older ones still hold their place. Thus in the single-plant showing, where the new and old are pitted against one another, it is consolatory to beginners to find that they are not altogether sure to be distanced by the possessors of new varieties. Taking the Crystal Palace Show, I find such flowers as Hudson's Apollo second and Beeston's Apollo fifth in green edges; Lancashire Hero second and Sykes' Complete fifth in grey edges. In white edges Summerscales' Catharina first and fourth, McDonald's Miss Ashley seventh and eighth, Catharina thus beating Smiling Beauty and John Simonite; while in selfs Pizarro, Meteor Flag, and Eliza, all old flowers, took nearly all the prizes.

The letters that have appeared in the Journal relative to classes which shall be open only to small growers, and the satisfactory answer of Mr. Dedwell, are indications of a right estimate of the situation; in fact it is with this as with all other things, the "victory is on the side of big battalions." Other things being equal, a small grower has little chance. A man who grows four thousand Roses is pretty sure to beat a man who grows three hundred on the show day if both are good growers; and so one who has twenty or thirty plants of a good winning Auricula is more likely to have one or two ready for the show day than the grower who has only a couple of plants of the same variety; and so the possessor of five or six hundred plants is pretty sure to distance the man who only has a few dozens. Hence there can be no surer way in which to encourage the growth of these beautiful plants than offering prizes to those who are the possessors of small numbers.

It is sometimes laid down as an essential matter in growing Auriculas that they should not be overpotted; but one of the very best growers in the north, Mr. Wilson of Halifax, grows his in the old Lancashire "moogs," which are fully 5½ to 6 inches across inside measure, and nowhere north or south can such plants of Leigh's Col. Taylor be seen as with him.

In going through Mr. Booth's houses I saw in quantities more or less the following, which are procurable. In green edges, Ashton's Prince of Wales, Campbell's Admiral Napier, Hudson's Apollo, Litton's Imperator, Oliver's Lovely Anne, Traill's Mayflower, and General Niel. In grey edges, Cheetham's Lancashire Hero, Clark's Mary, Dixon's Lady Jane Grey, Headly's Alderman C. E. Brown, Kenyon's Ringleader, Lightbody's Richard Headly, Robert Traill, and Sir C. Napier; McLean's Unique, Smith's General Bolivar, Sykes' Complete, Waterhouse's Conqueror of Europe, and Williams' Squire Chilman. In white edges, Campbell's Robert Burns, Heap's Smiling Beauty, Lightbody's Countess of Dunmore, McDonald's Incomparable, Poppleworth's Conqueror, Smith's Ne Plus Ultra, Summerscales' Catharina, and Traill's Beauty. And in selfs, Campbell's Pizarro, Kaye's Topsy, Lightbody's Lord Clyde and Meteor Flag, Martin's Mrs. Sturrock, Smith's Formosa, Spalding's Blackbird, Sims' Vulcan, and Turner's Charles J. Perry. Let anyone take the list of winning flowers at the Crystal Palace and Manchester, and they will see how large a number of these are to be found amongst them, and that if

they wish to commence a good collection there is no difficulty in the matter. Most of these are moderate in price; but if persons are in ecstasies over flowers and yet refuse to spend a moderate sum on them they cannot expect to be considered as very zealous in the cause. On the other hand there are a few which at present are next to impossible to obtain. Thus, amongst older flowers Leigh's Col. Taylor, Booth's Freedom, and Taylor's Glory are not often to be met with; while amongst the modern ones George Lightbody, Dr. Horner, George Levick, and Ellen Lancaster are difficult, although I am not sure that Mr. Booth may not be able to supply them; and Alexander Meiklejohn and Prince of Greens impossible—at least I have tried in every direction to get the former and have failed, so that really the impossible are a very small item. The notion has somehow got abroad that these flowers are not to be had, and hence I have written this; and what Mr. Booth can do in the north I believe also Mr. Turner can do in the south. I noticed, moreover, at the Manchester Show that another successful exhibitor, Mr. Royd, brought his flowers in the same large pots. This, too, was the practice of the best Auricula grower I ever knew, Dr. Plant of Monkstown, who used to say that if you didn't give boys room to grow how was it possible they could ever come to be men? It would thus appear that no hard-and-fast line can be laid down, and that the Auricula is more accommodating than is sometimes supposed.

The record of my visit to Failsworth has led me off into other matters; but the fact is the Auricula is an enticing subject, and there is always something one wants to learn or say about them; and all who love the plant will, I am sure, pardon the irregularity of these few notes.—D., Deal.

PEAR-GROWING IN SUSSEX.

It is not surprising that the appearance in the *Sussex Weekly News* of an article descriptive of 60 acres of land under cultivation as one vast Pear tree garden at Slinfold should create a stir in that somewhat drowsy county, where until now its very existence appears to have been comparatively unknown. The point of assumed secrecy is evidently sheer nonsense, as the plantations referred to have their approach from the main turnpike road, and are planted on both sides of it for some hundreds of yards before entering on their more extended proportions, the graceful outlines of which are attributed to Milner. Daily, now for a period of four years, have the orchards been visible to every passer-by; no hiding under a bushel has been resorted to, although none but certain experts and lovers of fruit culture have roamed among these experimental groves. The real cause of apparent privacy is traceable to Sussex incredulity in anything unless originating with the aborigines. During all the years employed in preparing and planting these gardens utter failure has been the cry of all but skilled gardeners; these, however, have from the outset recognised that the projector was no novice, but rather a practical sledge-hammer hand, to whose untiring energy and mastery of his subject success was a clear certainty.

Major Walter—who owns, and who may be said to have created these 60 acres of Pear orchards—is doubtless an enthusiast. We hear that some nineteen years since he unaided raised and equipped in Liverpool the first complete brigade of volunteer artillery formed in the kingdom. His labours in setting this national movement going were looked upon as a dream, for in one fortnight seven hundred young men and a complete staff of officers of the very *élite* of Liverpool recognising his energy and patriotism rushed to the banner he unfurled. The late Earl of Derby spoke of him as "the indomitable enthusiast through whose energy the volunteer movement was kindled and fed." Surely, then, there need be no surprise that like force expended in pomology as a favoured pursuit of such a mind should impart matter of interest to horticulturists.

On some future opportunity we hope to give our readers a description of the Slinfold plantations, meantime we feel it our duty to warn the sanguine against exaggerated ideas as to the profit likely to arise from the venture. It is easy to put forward glowing statements, but the retail price even of Pears and the pocket receipt of the grower are often wide as the poles asunder. Four years have already elapsed since many of the trees were transported to their Slinfold home. From that time until now all has been outlay of money, and the aggregate must be large. "All is not gold that glitters," even in fruit-tree culture. In due time there will, we do not doubt, be a well merited and earned reward, but we are bound to add

that where one under precisely similar circumstances could command success, ten would most probably have failed in such an untried enterprise.

The *Sussex* paper thus refers to these plantations:—"Great interest has been awakened among our *Sussex* horticulturists by an attempt on a huge scale at Pear-tree growing at Slinfold near Horsham; and although the enterprise has so far been quietly and unostentatiously prosecuted without public attention being drawn to it, yet the work is being watched with extreme interest by pomologists and the leading spirits of the county. Notoriety has recently been given these extensive plantations through an article in the *Dumfries Standard*, from the pen of a known Scotch writer who has recently been visiting the locality. Under the head of a 'Rural Note from the Weald of Sussex,' the Scottish writer thus descants:—"A dear old friend has purchased a charming property in the Weald of Sussex, and turned 60 acres of it into a Pear orchard, in which he has already planted many thousands of Pear trees of the very finest sorts, collected from the best parts of England and the most famous orchards in France, Belgium, and Italy. Some of the trees are as much as twenty years old, raised by the proprietor at his former beautiful place in Cheshire, some from Normandy, and some from the far south of France, and yet but few have been lost, so tenacious is the Pear tree of life. Anything more lovely than the orchard is now it would be difficult even to imagine. The property is on a somewhat highly elevated undulating plain, of a clayey loam soil, deep, and rich; when wet as adhesive as mortar, when dry it pulverises and assumes the appearance of delicate yellow ochre dust. Fancy yourself standing on the highest point of ground, where by-and-by a residence will be built, and looking over 60 acres of trees in full blossom, white as sheeted snow, spreading a perfume sweet as the odours that may have floated over the garden of Eden, and then you will be able to estimate the loveliness of the future home of my friend Major Walter. The view is very extensive. Looking to the south you have the whole of the Southdowns in view, stretching from Chichester to almost Beachy Head, and to the north the lovely Surrey and Kentish range of hills from Guildford to Sevenoaks, commanding a prospect of nearly thirty miles all round, whilst the central landscape is watered by the Arun, which, winding past the old castle of Amberley and the grand feudal pile of Arundel, enters the sea at Littlehampton. Nithsdale even is not more beautiful.' It may seem odd that a canny Scot should first publicly draw attention to this *Sussex* fruit forest, of which the county will doubtless be proud, even though until now its existence has been kept in the dark. The owner, however, is well known in the horticultural world as a Napoleon of Pear tree culture, and as having been engaged some twenty years at his former home in Cheshire in bringing forward a vast number of these trees now flourishing at Slinfold. Thousands of them varied from twenty to five years old when their removal into *Sussex* was commenced, now four years since. We admit that none but a man of extraordinary energy could have successfully carried out such a seemingly perilous enterprise. That it is a success no practical pomologist now doubts. There stand the trees, and during the last fortnight they have certainly presented a very lively appearance, as described by the Scotch writer. When first embarked in, their removal was looked upon by many as Quixotic. As a rule *Sussex* men do not entirely believe in matters in which they have had no hand, and apart from riskiness much doubt was cast on the suitability of the soil. We confess never to have questioned this vital feature. Many parts of *Sussex* produce beautiful fruit. We are nearest to the Channel Islands; in fact, we believe that it vies with the hitherto most favoured districts of England, and may yet prove the garden for the finest fruit products. It is satisfactory to know that this project, fraught with such interest to the county, rests with a skilled and determined hand. A large amount of capital and labour have been expended on these orchards at Slinfold, all the land has been thoroughly trenched, and every means taken that skill can devise to command success. If, therefore, the climate and soil are suited we may rest satisfied this will be attained; indeed, the undertaking is now removed out of the zone of doubt. Slinfold is doubtless one of the most picturesque villages in the county. Major Walter, if we mistake not, is well known among all the leading pomologists of Europe. Such men as the author of 'Lorna Doone' and 'Alice Lorraine,' an earnest lover of fruit tree lore, many of whose charming descriptions of rural scenery are from *Sussex*, Dancer of Chiswick, and Barron of the Royal Horticultural Gardens

are, if we mistake not, familiar with all that is being attempted at Slinfold. The magic touch of the landscape garden artist, Milner, is traceable in the outlines of Major Walter's orchards as in the general arrangements for outlay of the estate. Milner is not alone in aiding the refined and picturesque doings on his fruit farm, which, if we mistake not, is destined to be an important feature in pomological development."

OUR BORDER FLOWERS—BITTER VETCH.

WHO has not in the spring and early summer time by the way in shady woods and sunny slopes stayed to admire our own Bitter Vetch (*Orobis tuberosus*) with its purple-red Pea-like flowers? Why is it not taken into cultivation by the lovers of border flowers now that we are having a run for spring bedders? Is this beautiful native overlooked, or is it too common for cultivation? To me at least it has its charms. Lightfoot tells us that it finds more favour over the border in the Highlands of Scotland, where they dry and chew the roots to give a better relish to their liquor. Likewise they are said to be effective in chest disorders. By their use they are enabled to repel hunger and thirst for a long time. In some places they bruise the roots and steep them in water, and make from them an agreeable fermented liquor. They have a sweet taste, somewhat like liquorice, and when boiled are well flavoured and nutritious. In times of scarcity they served as a substitute for better food. In Holland and Flanders they are said to boil them until a fork will pass through them. Dried slightly and roasted they are served up as Chestnuts are, which they somewhat resemble in flavour. A plant with so many useful qualities to recommend it ought no longer to remain in obscurity.

The Spring Bitter Vetch (*Orobis vernus*) is a charming border plant in early spring, and is rather impatient of removal. It may be increased by division and raised from seed: I prefer the latter mode. The seed is best sown in the spring in rich light soil either in pots or sheltered borders. When the plants are large enough plant them where they are to remain. In time they form large plants, and are very beautiful when established; they last many years. They are at home in good loam and a fully exposed and moderately moist situation, where they may be left to shift for themselves. The Upright Bitter Vetch (*O. lathyroides*) is a showy border flower in early summer, and ought to be met with much more frequently than it is. It requires room for development and support to keep it from being blown about by the wind. It is best raised from seed, and is not particular to soil provided it has light and moisture. The Yellow Bitter Vetch (*O. luteus*) ought to be in every collection; its dense racemes of pretty yellow flowers are produced in profusion at midsummer. It is of moderately dwarf habit, which adds greatly to its beauty. The Variegated Bitter Vetch (*O. variegatus*) is perhaps the most striking of the family, and is also of dwarf habit, and flowers in the spring. The Hoary Bitter Vetch (*O. canescens*) from across the Channel is comparatively of recent introduction, but ought to be in all collections. It is highly desirable for border or rockery. It is light blue in colour, and keeps long in flower. The White-flowered Bitter Vetch (*O. albus*) is of somewhat delicate appearance, but when established is a fine border plant. It thrives best in a moderately dry and partially sheltered situation. A free loam with sandy peat meets its requirements, and when established needs little further care. There are many others of this race that might be enumerated which with moderate care cannot fail to give satisfaction. This is a race of plants that needs taking in hand by cultivators, for they are worthy of extensive cultivation.—*VERITAS*.

WORK FOR THE WEEK.

KITCHEN GARDEN.

GET out a good breadth of Celery, for though the plants make much progress in the autumn they must be planted early if good well-blanced heads are expected. The earliest rows now established must not be neglected for water and liquid manure. Plants that are growing under handlights will soon be ready for a good earthing; the lights will have been removed some time. A good watering should be given previously to the earth being applied. Afford copious supplies of water to Cauliflowers, also to successional crops, pouring liquid manure also between the rows. Make a practice of planting out a breadth of Cauliflowers every fortnight or three weeks. Dwarf Kidney Beans sow if required. We sow every fortnight or three weeks from late April until early July. Now that Peas are coming in relax the cutting

of Asparagus, and at once commence feeding the beds with liquid manure. Nothing injures Asparagus so much as late cutting. Young plants may now safely be transplanted, being careful to lift them with all the roots practicable, and keep them from the sun. If no Cauliflower seed was sown as advised for the Michaelmas crop it must at once be got in. We like to sow a pinch of seed now in addition to that sown in late May. The plants from this sowing come in very late, and are useful for lifting to store in frames. Globe Artichokes delight in nothing so much as broiling sun and abundant water at the root. Peas, if the weather be dry when they are coming into flower and have begun to slat, apply water along the sides of the rows and mulch with short litter. Attend to Cucumbers and Vegetable Marrows under handlights, carefully admitting air freely in fine weather. When the bines commence running raise the lights upon bricks at the corners to admit of their spreading outward. To ensure early Marrows do not neglect to impregnate the female flowers. Ply the hoe frequently between the rows of growing crops, which is all that is necessary to keep down weeds in fine weather, but in moist weather hand-weeding may be necessary to keep them from seeding, which must not under any circumstances be allowed. The earthing of second early and late garden crops of Potatoes must be completed. The early crops are all that could be desired and are tuberizing well, but the second earlies have come very unevenly, particularly Lapstone, and "curl" is already showing itself.

FRUIT HOUSES.

Figs.—Continue the directions previously given about those ripening for fruit; whether in pots or planted out a good mulch should be given, and the waterings through it will carry nutriment to the roots. When the first crop is all gathered syringe the trees twice a day, and afford them more water to assist the swelling of the second crop. If the fruits set too thickly they must be thinned, for if too many fruit are allowed to ripen they will be small in size and badly flavoured. The earliest forced trees will, if required for the same purpose another year, be better adapted for early work, especially if the trees are weak, by not allowing them to perfect a second crop, although if vigorous a second crop may be taken without impairing them for next year. Keep them in the house until the wood is ripened, when place outdoors in a warm situation, the pots being plunged in ashes, and kept well watered and mulched; the trees will then be in fine order for early forcing. In later houses the shoots will require tying-in, thinning where too thick, and stopping. When the fruit commences ripening, the supply of water to the roots and the syringing must be gradually diminished until the crop is all gathered.

Pines.—About this time the plants intended for affording fruit in early winter will be showing signs of fruiting. This will be the case with the plants that were shifted into the fruiting pots in September; if not, they should be rested for four to six weeks by reducing the temperature at the roots to 75°, ventilating freely, opening at 75° and closing at the same degree, and employ fire heat only to prevent the night temperature from falling below 60°. Do not allow the plants to become very dry at the roots; but when water is required give it liberally, for to keep them dry as dust is very injurious to the plants. Small suckers not shifted into the fruiting pots in September, but kept in small pots over the winter and shifted into fruiting pots in spring, should be kept growing on for a month or so longer until the pots are well filled with roots, and being then subjected to the treatment advised for the larger plants they will afford a successional supply of fruit. Queens and Providence Pines which started into fruit in February will ripen this month, they requiring less time to arrive at perfection than any other kind; hence their suitability for early summer use. Although a Providence is not equal to a Queen in quality, yet large fruits are often in request for the sake of their noble appearance. Smooth Cayennes, Charlotte Rothschild, and similar kinds require about a month longer to ripen properly than Queens under similar treatment, affording a successional supply of ripe fruit, which may be further extended by removing some of the plants with the fruit to a cool airy house. When the fruit commences colouring cease syringing, gradually diminishing the supply of moisture in the house, but afford water to the roots as required. Both the colour and quality will be improved by freer ventilation, but not so freely as to reduce the temperature below 80° by day, maintaining the night temperature at 75° to 70°. Maintain the bottom heat at 80° to 90° to all plants excepting those being rested.

Cucumbers.—Strawberry houses, houses occupied by Vines in pots, and structures employed for wintering bedding plants, will soon be cleared and may be employed for growing a late supply of Cucumbers. The plants may be grown in pots 12 or 13 inches and larger, draining them well, and only partly filling them with compost, so as to leave space for fresh additions. They may be plunged in spent tan or other material. A wood or other description of temporary trellis may be improvised at 15 inches distance from the glass. No fire heat will be necessary, the house being closed between 8 and 4 P.M., syringing then, the floors and every available surface being kept damped so as to secure a good moisture during the day; but do not syringe in the morning, it

often being the cause of great mischief to the foliage. Admit air at 75°, and allow the temperature to rise to 85° or 90° with sun and increased ventilation, closing at 80°, and if the temperature rise to 85° or 90° afterwards all the better. In the Cucumber house fire heat will only be required to keep the temperature from falling below 70° to 65° at night, and 75° to 70° by day by artificial means will be ample. Attend well to stopping the shoots, removing bad leaves, well thinning out the old growths, and watering copiously with weak liquid manure about twice a week. Pit and frame Cucumbers may be watered and closed at about 4 P.M. or earlier according to the weather, but it must not be done so early as to cause the temperature to rise above 90°. Liquid manure may be given occasionally, but it should not be allowed to wet the foliage.

Melons.—Some difficulty is sometimes experienced in getting the blossom to set and fruit to swell freely; more particularly is this the case with plants in frames. It usually arises from the atmosphere being too moist and the plants too crowded with foliage accompanied by cold. Anything like crowding of the shoots is fatal to a good set, therefore the shoots should be kept rather thin by removing every alternate lateral whilst quite small, for to remove them when large very often induces canker. The laterals retained should be stopped two joints beyond the first female blossom. When those show fruit water should be given if necessary, pouring it between the shoots so as not to wet the surface to any great extent. Some hot dung should be placed against the sides of the frames, or grass mowings will do with a little long litter over the grass. This will raise a gentle warmth, admitting of a little air being left on constantly day and night—about half to three-quarters of an inch, which prevents deposition of moisture upon the blossom, which is fatal to fructification. Impregnate the flowers when fully expanded, being particular to touch the stigmas of the female with the anthers of the male, which is readily performed by denuding the flower of the corolla. Air should be freely admitted if the weather permit, increasing the ventilation at 75°, allowing it to rise to 80° to 85°, closing at 75°, except the small portion before alluded to. When two or three fruit are set and the size of a bantam's egg, commence watering by sprinkling overhead at closing time, always keeping the water from the neck or collar of the plants, and besides the sprinkling give a good watering twice a week in hot weather; once, or not that, will be ample in dull weather. Commence giving air at 75°, allow the heat to rise to 85° or 90°, close at 80°, or between 4 and 5 P.M. with a gentle damping. When the fruit is advancing for ripening, or about forty days after it commenced fairly swelling, keep the bed well lined with hot dung or grass mowings, and admit air freely, leaving a little on constantly, omitting the sprinklings overhead, and water through the spout of the watering pot instead of a rose, so as to keep the surface of the bed dry. Cut the fruit not more than a day after it commences giving off its aroma, placing it in a dry room, and in two or three days it will be in perfection, which is when the ripening colour pervades every part of the fruit, after which flavour is lost rapidly and in a few days entirely gone. A badly ripened fruit is not nearly so insipid as one over-ripe. Cut back the bines of those from which the fruit has been cut, remove a little of the surface soil, replace by fresh, and give a good watering. If due regard has been had to keeping the soil moist for the first crop fresh growth will be quickly made, and fruit will speedily set and swell; indeed we have fruit set and swelling freely before the first fruits are cut, having encouraged fresh bines from near the collar of the plants. Some cultivators keep their plants so dry at the roots during the growth and ripening of the first crop as to completely exhaust the plants and in many instances spoil the fruit, it ripening prematurely, and consequently is flavourless.

PLANT HOUSES.

GREENHOUSE.—*Mignonette* for autumn and winter flowering should now be sown. There is now great variety. For general purposes Queen Victoria is unsurpassed, it and Giant Red Pyramidal being the best "reds." Parson's and Garraway's White and Miles's "Spiral" being all good in their section. We sow in small pots, a few seeds in each, in a cold frame; when the plants are about an inch high we thin them, leaving one in each pot, shift into pots a size larger as the pots fill with roots until they are in 9-inch pots; the pots are placed on ashes in a sheltered but open situation, staking so as to prevent the shoots being broken, and pinching off all spikes of bloom as they show until the middle of September, when the plants are assigned a light airy situation in a house having a temperature of 60°, and they flower through the winter. They are fed with liquid manure after the 9-inch pots are filled with roots, but are carefully watered in winter, allowing the soil to become dry before giving any and yet before flagging. Smaller plants are had for decorative purposes by sowing about six weeks hence. Turfy loam with a free admixture of sand and charcoal, both to the extent of a fifth of the loam, form a suitable compost with thorough drainage.

Heliotropiums.—Take cuttings now of strong healthy growing shoots, insert them singly in small pots, and place in gentle heat. When rooted remove them to a cold frame, gradually harden off, and shift into 6-inch pots; return them to the frame, admitting air

freely. When the pots are filled with roots shift the plants into 7-inch pots, and place them on ashes in an open situation and keep them well supplied with water. Pinch out the bloom as it shows until September; at the end of that month place them in a light airy house with a temperature of about 50° by artificial means, and feed them with liquid manure. They will bloom all the winter, and are useful for cutting or decoration. Larger plants may be had by potting now healthy plants from small pots, shifting them on until they are in 10-inch pots, and then feeding them with liquid manure, keeping off all flowers until the plants are placed under glass in the autumn.

Azaleas out of flower will be making growth, and should be at once repotted—i.e., if they require it, but avoid overpotting, they not requiring nearly so much pot room as many other hardwooded plants. Keep the house close and moist for a few weeks after potting, shading from bright sun. Employ sandy peat broken up small, adding about a fifth of silversand, drain well, and press the soil very firmly around the ball, leaving a space of about an inch for watering for a 7 or 8-inch pot, and proportionate increase of depth for the larger sizes, as these plants require abundant supplies of water. If thrips infest the plants syringe them with tobacco water diluted with six times the quantity of water, or if fumigation be resorted to be careful not to injure the foliage by an overdose. When the growth is complete admit air freely, and gradually reduce the shading with a view to the ripening of the wood and the setting and thorough development of the buds.

Camellias.—Late-flowering varieties will be making growth, and are benefited by weak liquid manure, unless the plants are very luxuriant, when it not infrequently does harm by increasing the vigour and inducing a second growth. We had blooms of Beali and Candidissima at the end of May. Weakly plants should have manure water until the buds are set. They should never become dry at the roots, and, on the other hand, not be made sodden. Plants placed in heat after flowering early will have set their flower buds, and should be placed in a cool airy house, one preferably with a north aspect, or under temporary lights behind a north wall, which is better than placing the plants outdoors to be drenched by rains, which often causes loss of roots to an extent causing the dropping of the buds at a later stage, often when they should be expanding for flowering. Our plants are never placed outdoors, and we have blooms from October to May inclusive.

Small plants of *Petunias* should be potted and grown on in a cold pit, affording them plenty of light and room. They do well in turfy loam with a fifth of leaf soil or well-decayed manure, adding about a sixth of sand. If showing for flower on one stem stop them to induce side shoots, but not very closely. Six or 8-inch pots are large enough. They are fine for blooming in late summer. Shift *Fuchsias* intended for late bloom into larger pots, stopping the shoots as they need it to induce dense growth, and if plunged outdoors in a sheltered situation they will have very much better foliage and flower more finely than by growing them under glass, they being removed indoors about a month before wanted to bloom. Cuttings of zonal *Pelargoniums* now inserted singly in small pots strike freely in cold frames, and if grown on through the summer make plants that in a temperature of 50° from artificial means will grow and flower all the winter through in 6 or 7-inch pots. Young plants are very much better than "cut-backs," giving larger trusses and blooms. Balsams may yet be sown for September flowering, and very useful they are at that time when there is little else. Cockscobs after the "combs" appear should be fed with liquid manure. They do well after this in a cold frame, which should, however, by early closing be kept at a hot-bed temperature. When the combs are full-sized they are fine for decorative purposes. *Celosias* should have every encouragement by being shifted into larger pots until they are in their blooming pots, and then feed them with liquid manure. The flower heads both upon the leads and side shoots should be pinched out, and they will then afford plenty of feathery sprays. Well-grown plants are very useful for the conservatory in late summer. *Tuberose*s to flower late should be potted in moist soil and plunged in bottom heat until fairly on the move, when plunge them in ashes in a cold frame and water them as required. Another lot may be potted at the end of the month for flowering late in the year, and when they are specially acceptable.

STOVE.—Spring-struck cuttings of *Eranthemum pulchellum* should be potted in 6-inch pots, also *Aphelandra cristata*. They do well in equal parts of peat and loam, with a free admixture of sand, and good drainage. *Aphelandra aurantiaca* Roetzli is very desirable from its dwarf growth and fiery orange-scarlet flowers. It also should be encouraged to make growth, but do not overpot, the plants doing well in 4 to 6-inch pots. They should be kept near the glass. Cuttings of *Conoclinium ianthinum* may now be inserted in sandy soil, and be placed in bottom heat; when rooted shift the plants into 6-inch pots. Old plants shift into larger pots. Fibrous loam with a little leaf soil will grow it perfectly. *Thysacanthus rutilans* is a fine old plant and should be grown-on in a light airy situation. *Centradenia rosea* and *floribunda* shift into larger pots, and stop the shoots as required. *Francisceas calycina* major and c. *Hopeana* will now have completed their

growth and should have a light position, but not be allowed to suffer for water, and they will flower again in autumn or winter. They are fine decorative plants. Cuttings when well rooted of *Euphorbia jacquiniæflora* pot off. The plants should be stopped once and no more, or the sprays will be weak. Avoid overpotting and overwatering, but afford enough of the water to maintain the plant's lower leaves. Loam is the most suitable compost. If there be a border at command wherein to insert the plants do so, well draining it, and using good turfy loam. The situation must not be shaded. Plants grown in pots are far behind those planted out for affording flowered sprays for cutting. *Poinsettias* when well established in pots, whether old plants or young, must be grown-on near the glass, and are best after the middle of the month placed in cold frames or pits, the object being to induce sturdy habit. *Gesneras exoniensis*, *zebrina splendens*, *cinnabarina*, and others of that type, must be encouraged to make growth, and they must not be grown in the shade, though a slight shade from bright sun is desirable. If for decorative purpose one large corn in a 6 or 7-inch pot will be sufficient, but five or more may be placed in an 8 or 9-inch pot. *Tydeas* must not be neglected, as too often is the case, they being among the finest of winter-flowering plants, and should have light airy situations, but not draughts of cold air. *Gloxinias* for late blooming should be encouraged. If the seedlings have not been potted off lose no time in doing so, and grow them on shelves slightly shaded. They will bloom finely in late summer and autumn. *Scutellarias* keep near the glass, and give them weak liquid manure. Insert successional cuttings of *Poinsettias*, taking them off with a good heel, also successional cuttings of *Euphorbia jacquiniæflora*. It is hardly possible to have too many plants for winter flowering, but crowding is one of the greatest evils in plant culture; a few plants well grown are better than a great number in poor condition. *Rondeletia speciosa* and *major* should have a light moderately airy situation, and be kept well syringed to prevent thrips and red spider. When well grown it is a fine plant for late summer. *Lasiantha macrantha*, with its bright deep purple salver-shaped flowers, is a good late-summer-flowering plant, but to bloom well must be near the glass and have plenty of light, also room, as it grows tall. The dwarf variety *floribunda* is very much more tractable and freer-flowering. *Burchellia capensis* should have encouragement; it requires plenty of air, light, moisture, and not too much pot room. *Clerodendron Balfourianum* and *Bougainvillea glabra* when they have ceased flowering should be placed in a drier and cooler house fully exposed to the sun, not watering them until the leaves flag. Continue this treatment for six weeks, and then place them in the stove and water them copiously, occasionally with weak liquid manure, and syringe them twice a day. They will start again freely and flower well in late summer. *Allamandas* encourage with weak liquid manure, also *Dipladenias*, but the last do not require nearly so much water as *Allamandas*—indeed should not be watered until they become quite dry. Roof-climbers must be frequently attended to in thinning and training, and when coming into flower give the border a good soaking with liquid manure. *Centropogons* should be encouraged, turning them out of the pots, removing the old soil and returning to the same or a smaller size of pot. Grow them in a cold pit, keeping it close and shaded for a time until the plants are established, then admit air moderately, and sprinkle and close early in the afternoon. *Monochætums* should be treated in the same way, the object being to have them stout. They do well in loam with a little leaf soil, and not overpotted. *Imantophyllums* are growing freely, and should be encouraged with weak liquid manure. They like plenty of light, also moisture when growing. Strong plants flower two or three times a year. If more pot room is required give it. We grow them in lumpy loam with a modicum of well-decayed manure. *Amaryllises* examine for mealy bug, &c. Wash the leaves with a sponge, and keep the plants well supplied with water. They require a position near the glass fully exposed to the sun. *Urecolina aurea* keep near the glass and duly supplied with water until the leaves turn yellow, when a little water now and then just to keep the soil moist will preserve the bulbs. *Achimenes* and *Gloxinias* showing for bloom keep well supplied with weak liquid manure. *Meyenia erecta* if liberally watered with liquid manure, and moderate pot room is afforded, will flower all through the summer. *Thunbergia Harrisii*, and *T. laurifolia* also, if duly fed and kept clean afford a succession of bloom over a lengthened period. *Anthuriums* when flowering and making fresh growth should have an abundant supply of water and air-moisture, and be near the glass, with slight shade from bright sun. These fine decorative plants should be grown in quantity, their flowers (spatheas) being very enduring.

TRADE CATALOGUES RECEIVED.

John Laing & Co., Stanstead Park Nursery, Forest Hill, London.—*Catalogue of Stove and Greenhouse Plants, Florists' Flowers, Roses, Vines, &c.*

William Bull, King's Road, Chelsea.—*Illustrated Catalogue of New and Rare Plants.*

Osborn & Sons, Fulham, London, S.W.—*Catalogue of Herbaceous, Bulbous, Alpine Plants, and Hardy Ferns.*

William Thomson & Co., 16, St. Giles Street, Edinburgh.—*Catalogue of Choice Seeds, Roots, and Implements.*

Ant. Roosen & Son, Overveen, Haarlem, Holland.—*Catalogue of Dutch and Cape Bulbs, Aroids, Terrestrial Orchids, &c.*

TO CORRESPONDENTS.

HEATING BY A PARAFFIN LAMP.—*"One in a Fix"* asks whether any of our readers have a boiler heated by a paraffin burner; if so, whether they would give instructions how to make the stove. He could make a boiler and pipes to be heated by a gas-burner, but cannot understand how the boilers heated by paraffin are made, because if a boiler is fixed over the lamp soot would collect at the bottom of the boiler and drop down the glass of the lamp. If any of our readers would give plans for any kind of stove that does not require a smoke chimney they would be doing a great service to many.

ROCKWORK.—*J. House* wishes to be informed where a light open shelly sandstone suitable for rockwork can be obtained.

HEDGE-EATING INSECT (*J. G.*).—The caterpillar is the larva of the Little Ermine (*Hyponomeuta padella*), the only effectual remedy for which is the destruction of all noticeable webs containing either larvae or pupae. You have not, we think, reason to apprehend that the pest would kill the bushes. We have never found that occur, even where the species attacked hedges already weakened by the ravages of other larvae. Soot would not be likely to do much good. Were it possible, however, to syringe the hedges many of the insects would be killed, moisture proving prejudicial to them.

SAWDUST MIXED WITH DUNG (*An Employer*).—It does not render the dung objectionable for application as a manure. The sawdust decays more gradually than the dung.

THRIPS ON VINES (*J. B. B., Ballymacod*).—We never saw a Vine leaf more thickly infested with this destructive insect than the leaf you have forwarded. If the whole of the foliage is similarly infested your Vines will receive serious and permanent injury unless you promptly adopt remedial measures. We advise you to have every leaf sponged with a solution of soft soap, 2 to 3 oss. to the gallon of water, to which add a sixth of tobacco water. If you set to work earnestly you will not find the task so tedious as you may imagine it to be. We should also fumigate the house once a fortnight when the foliage is dry. One smoking is of little use, for while it may kill the insects it will not destroy the eggs which they have deposited. Keep also a moist genial atmosphere.

CARPET BEDDING (*W. B. T., Notts*).—The best book for your purpose is the "Parks and Gardens of London," by Mr. Cole. It is published at this office, post free 5s. 6d.

CAPE CINERARIA (*Jersey*).—Your plant is a Cineraria, and we think *C. alba*, introduced from the Cape some fifty years ago. It is raised by cuttings taken as soon as they can be had after the flowers fade. They may be inserted in a pot under a bellglass and kept in a cool house or under a handglass.

LILY OF THE NILE CULTURE (*J. K. L.*).—Turn your plants out of the pots now, shake off the soil, divide the stools into as many pieces as retain good healthy roots, and plant them out 2 feet apart in a bed of rich soil in the open garden. Water if the summer prove dry, keep down weeds, and by September you will have a store of fine healthy plants well furnished with dark green foliage, which should then be lifted with very little soil and repotted in soil of two parts loam, one of leaf soil or old hotbed manure, and a half part sharp sand. Let your pots be in proportion to the size of each plant. Use plenty of broken pots for drainage, so as to insure a free passage for water, which give abundantly. To convince you that no fear need be entertained of overwatering we may add that this fine old favourite proves to be one of our best aquatics, and we have now several plants in full bloom well established in a pond under a couple of feet of water.

PRUNING NEWLY PLANTED RASPBERRIES (*Idem*).—The Raspberry canes should have been pruned to within a foot of the base when planted; leave them alone now till autumn. Replace the soil containing the fungus with other that is sweet and wholesome. If you have planted your flowers it is hardly worth while disturbing them now, as, although the fungus will somewhat affect their health, it will not kill them unless it is present in unusual abundance.

SPERMANNIA AFRICANA (*Major-General M.*).—After the plants have flowered you may cut them down and insert the cuttings in sandy soil and place them in a warm, moist, close atmosphere, where they will emit roots, and may then have more light and air. If potted-off and grown liberally they will make attractive flowering plants for next winter's display. After the old plants have made fresh growths an inch long shake most of the old soil from their roots and repot the plants in clean well-drained pots of the same size or a size less than those in which they have flowered. If you do not wish to cut down the plants you must either repot them or give them rich top-dressings and liberal supplies of clear weak liquid manure, soot water being excellent. Fumigate for the destruction, or, what is preferable, the prevention of green fly; or you may syringe them with a solution of Gishurst compound, half an ounce to a gallon of water.

GRAFTING PLANTS (*Idem*).—The easiest plants for you to commence with are perhaps Cactuses. Camellias must be grafted on Camellia stocks, and the plants grafted require to be kept close and moist for some time after the operation.

CUCUMBERS FAILING (*R. M.*).—A heavy sodden condition of the soil, a low temperature with a close moist atmosphere, a very light loose soil, insufficient nutriment, may all be cited as causes of the young fruit of Cucumbers becoming yellow-tipped and dying. If the soil is sound and wholesome, and neither excessively light nor heavy, and the roots are healthy and plentiful, a few waterings of liquid manure of the same temperature as the bed should put matters right; and if the soil is shallow apply a top-dressing of rich old manure and loam mixed in equal parts, and into this secure with pegs a few of the leading shoots, slightly covering with soil the part pegged, so as to induce it to emit roots and thus impart greater vigour to the entire growth.

GERANIUM DISEASED (*A Cottage*).—Cut down the plant, shake much of the old soil from the roots, and repot it in fresh compost, or probably it would recover with more certainty if planted-out for two months. The plant has been overfed, and the soil has become sour during the winter months.

APHIS ON ROSE TREES (*W. Thelgou*).—The answer on page 382 contains

what you require. We repeat part of it:—Boil 4 oss. of quassia chips in a gallon of water for fifteen minutes, and add to it four gallons of pure water, mixing it also with a little tobacco water, and with this syringe the trees.

TIMBER FOR A GREENHOUSE (*A Gardener*).—Some notes on this subject will shortly be published.

MILDEW ON ROSES IN A CONSERVATORY (*J. Huish*).—A cool, moist close atmosphere has probably caused mildew to attack your climbing Roses. Syringe the affected foliage, and immediately dust it plentifully with flowers of sulphur, which leave upon the foliage four or five days, then wash it off with clean water applied with a syringe, and repeat the dusting if the mildew is not quite eradicated. Owing to the cold wet weather your house has probably been kept somewhat close. See that it now has a free circulation of air for some hours daily, applying a little fire heat rather than not open the ventilators, and you will soon have your Roses clad with healthy foliage again.

ROSE LEAVES SPOTTED (*Cuskin*).—The spots are caused by deficient root-action. More manure and water would prevent them.

PROPAGATION OF DAISIES, &c. (*T. M. B.*).—Make a bed of rich gritty soil forthwith in any shaded portion of your garden, such as behind a north wall, building, or fence; divide the Daisies, Polyanthus, and Auriculas, and insert them in it about 6 or 9 inches apart, and after a few waterings you only further care this summer will be to keep down weeds. Let the size of the plants be your guide as to the distance apart to plant the Verbenas; 8 inches is a good distance if the plants are in tolerable condition. Broccoli and Winter Greens may be planted between the rows of early Potatoes if the soil is rich. Take up the Potatoes as early as possible, and do not forget to apply a heavy dressing of manure when the Broccoli and Greens are cleared, such heavy cropping being very exhaustive.

BIENNIALS (*J. Watson*).—This term is applied to plants raised from seed but not coming into flower till the next year, when they usually die. All the plants you enumerate are such, and to term them biennials is therefore correct. It is probably owing to the fact that many of them, as for example Sweet Williams and Indian Pinks, will live longer if prevented from becoming exhausted by perfecting full crops of seed, that they are sometimes included in the list of perennials.

SAVING GLOXINIA SEED (*J. H. B.*).—Give your Gloxinias plenty of liquid manure to induce robust foliage and large flowers, and when the flowers are fully developed let them have plenty of light and air, and water sparingly. Disperse the pollen with a camel-hair brush, and your seedlings will give considerable variety of colour.

PROPAGATION OF ERICAS (*Idem*).—Insert cuttings of the young growth in silver sand upon well-drained peat, and cover them with bellglasses. Azaleas may also be treated in the same manner. Your Cucumber house will answer very well for the purpose. Much care is requisite in keeping the sand regularly moist and in wiping the condensed moisture from the interior of the glasses. The striking of hardwood plants can only be insured by skilled propagators.

CULTURE OF NERTERA DEPRESSA (*A. B. C.*).—This plant answers well in small pots of rich soil in a warm greenhouse temperature. It loves plenty of water while growing freely and perfecting its fruit. We have numerous plants bearing berries abundantly growing in miniature swamps made by mixing rich soil with water in small flower saucers and planting a small portion of a plant in the centre, where it soon spreads over the surface, blossoms, and bears fruit. You have done wrong to put your sickly plants in a cold frame. Adopt our method, and put them in an unshaded place in your vinery. They will thrive admirably in a cold frame when they are well established in their pots.

GRAPE VINE LEAVES UNHEALTHY (*Idem*).—The thin texture of your Vine leaves is a clear indication of imperfect root-action. Formed from the stored-up sap they failed to obtain that supply from the roots which imparts substance, simply because of a paucity of feeders or rootlets, and unless such exist it is quite useless to cover your border in winter. Look to the border. Is the drainage so bad that stagnant water accumulates and kills the roots? Is the soil exhausted? If so apply a heavy top-dressing of manure immediately, and add a few feet of fresh soil to the width of the border if possible. Sound drainage, plentiful waterings, especially of sewage, and heavy surface dressing of manure, will do more good than anything else. Encourage as much lateral growth as you can in order to promote an abundant formation of rootlets, and you will find that the foliage will not become scorched like that of the earlier leading shoots, and thus have a reliable indication that a real improvement is being effected.

BEETLE ON POTATOES (*M. E. Holman*).—It is not the Colorado beetle. Entomologists tell us it is *Adilius sulcatus*, an aquatic beetle that often wanders from the water.

NAME OF FRUIT (*A Constant Reader*).—Winter Greening. The plant is *Iris foetidissima*.

NAMES OF PLANTS (*A Reader*).—We cannot identify from leaves only. (*East Sussex*).—1, *Calamintha grandiflora*; 2, *Saxifraga hypnoides* var. (*Fern Leaf*).—*Buddleia globosa* and *Diplacis glutinosus*; (*R. Ding*).—1, *Adiantum cuneatum*; 2, *Davallia canariensis*; 3, *Pilea muscosa*. (*W. E.*).—1, *Alyssum* (*Königs*) *maritimum*; 4, *Polygala oppositifolia*. (*Prowse*).—*Pyrus*, near *Aria*, but not that species; 2, *Hydrangea* sp.; 3, *Ribes speciosum*. (*W. H. Bibby*).—*Weigela amabilis*.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

CULTIVATION OF THE SWEDISH TURNIP.

THIS root is one of the most useful in cultivation, and with proper management may be grown upon all soils. Mangold wurtzel has to some extent displaced a portion of the Swede crop, yet for open field feeding, especially upon hill farms and where large breeding flocks of sheep are kept, Swedish turnips still hold their own, and are the principal dependence for sheep in the spring months. When Swedes are to be grown after

wheat or any grain crop and the land contains couch grass, it should be tilled immediately after harvest; but we object to deep ploughing by steam power, as it brings up raw soil, which is often sour and unkind and is also loaded with the seeds of weeds, which cause much trouble and involve additional expense in hoeing and cleaning of the crop of Swedes; but if the land is cultivated by steam power and only moved a good depth without bringing the subsoil to the surface, we have all the advantages of deeply stirring the land without the disadvantages attendant upon deep ploughing. It must, however, depend upon the nature of the soil as to how it should lie during the winter months. If it is light soil, either of chalk, gravel, or sand, it may remain on the level; but in case the land is of clay or strong loam and lying flat, it is best to have it left in ridges of the usual size, the land properly water-furrowed and left as rough as possible. It is a common practice in some counties, particularly in the northern and midland districts, in the case of light land, to plough the land into stretches about 2 feet apart, as it then receives the full benefit of a larger surface exposed to the action of frost and rain.

Very much will depend upon the rotation of crops upon which the land is cultivated, and this will differ in almost every county and district. The course of cropping will of necessity influence the mode of management for the root crop. When the land is free from couch the wheat and other eddishes are left to run the sheep on, or seeded with light grass in order to furnish autumn food for the ewe flock; but in case the land is intended for Swedes no roots of turnips or Swedes should be drawn to the ground for feeding the sheep, because any parts of roots lying about unconsumed if ploughed-in seriously interfere with the Swede crop following. We have noticed in such cases where the remains of roots have been turned in and buried with the plough, although the Swedes were properly manured and cultivated, that the plants would grow very well and produce good-sized bulbs, but that early in the autumn they would die away with a sort of dry rot on the crowns and be quite worthless for keeping, and should be pulled for immediate feeding as soon as the rot was discovered.

Rotation, too, has a great effect upon the growth of Swedes. Many years ago we took to a farm whereon root cultivation had been little practised, and in consequence we could grow capital Swedes without any manure if the land was in good condition in other respects and well cultivated. After a few years this could not be done, and good Swedes could not be grown without artificial manures; and, again, upon the same farm after a long succession of Swede culture we were obliged to give up their growth altogether; for although we could grow as fine crops as before by heavy manuring, yet the roots would not keep during the winter months, even if they were used for cattle or fed-off early by sheep: they possessed but little or no feeding properties, as neither bullocks or sheep would fatten upon them. We partly attribute this to other causes than the continued cultivation and growth of the same root without alternation, because the land was under a very high system of farming, and was in consequence strongly impregnated with ammoniacal manures, which are not favourable for the healthy growth of Swedish turnips unless the land was in very poor condition previously. This is evidenced by the application of Peruvian guano or nitrate of soda in large dressings, as the roots produced will grow with long stems and be sure to decay prematurely.

As a preparation for the culture of Swedes the land should be pipe-drained if lying wet and flat; in fact, upon flat strong land we cannot recommend the culture of this root. We much prefer a crop of mangold to be removed and followed by wheat, barley, or oats according to circumstances. It is true the crop of Swedes may be removed for cattle feeding in the same way, but they do not keep so well in store for any length of time as a mangold crop, nor can they compare with mangold in other respects, for mangold on the same land will produce one-third more weight, and one-fifth more feeding value per acre than Swedes. One of the chief requirements for successful Swede culture is that the land should be fresh in chalk. Cultivators are often deceived in this matter, because, the farm land resting on chalk, they have oftentimes no conception that such land is sour and unkind and may require chalk to grow roots upon it in perfection. It is, however, not enough that the chalk underlies the soil, it must be in active operation on the surface to be of benefit in root culture. We have often heard farmers say, Our land cannot require chalk, for we can plough it up by going a little deeper; but this is a great mistake—it is rubble, it is not chalk. It was chalk originally, but the roots of plants and the action of air and water have robbed it of its lime and left it little better than gravel, and is often called rubble. We have, however, noticed in soils that were entirely out of chalk, all former application having been used up, that when twenty-five bushels per acre of fine-screened chalk were drilled with the manure instead of ashes, Swedes succeeded remarkably well. This practice, even upon the sharpest sandy land subject to weeds, will insure healthy growth of Swedes; but the chalk must be pure, soft, and taken from the bottom of the

pit, the greater the depth the better from which it is obtained. This may in the winter time be carted home, so that it becomes dry and fit for use in due season. Whenever land is quite free from couch, and particularly where large flocks of sheep are kept, it is not desirable to have a naked fallow during the winter and spring, which is the most expensive of all preparations; but we prefer to grow a crop of rye or trifolium to feed-off with sheep, or cut up as green fodder for cattle or horses. The ploughing and drilling the Swedes should take place immediately after the green crop is removed, otherwise in a dry season the land will become dry and unkindly for Swedes. In all other respects it will be better than an old fallow with less damage by fly, wireworm, grub, or other enemies.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour is still in arrear owing to the succession of wet weather, and a considerable portion of the mangold seed is still to be sown; and some of the early-sown crops having been eaten off by the small white slug the land will have to be ploughed and resown. It is getting rather late for the drilling of mangold. We have, however, in some former seasons when delay has arisen sown the seed as late as the middle of June and obtained a very fair crop, sometimes over 26 tons to the acre; but this is not obtained without plenty of manure drilled with the seed and at hoeing time leaving more plants, as they cannot be expected to throw such large bulbs as when early sown; therefore numbers must tell, or the weight per acre will be deficient. The horses are still engaged preparing the land for Swedish turnips; and in all those cases where the root crop is intended to follow rye and trifolium or vetches, the quicker the land is ploughed and sown after the removal of the green crop the better, whether the season afterwards proves either wet or dry.

Hand Labour will now be employed in trimming hedges, particularly the quickset hedges, as these to be kept in the best order should be trimmed twice a year, that is at the middle of June and at Michaelmas; but where the quicksets divide the arable land we require to know for what these hedges are required, for unless bullocks are grazed instead of sheep they are certainly not required, and acting upon this idea we removed all the hedges upon our own farm as well as upon other farms under our supervision many years ago except those required as fences near to public highways and pasture land. We were induced to resort to this sweeping reform in farm management in consequence of the damage which we often observed done by high winds on the lee side of the hedges, where the eddy and whipping action of the wind has done great injury to the corn, especially at and near harvest time, whereas in the open part of the fields, where the wind passes over without any impediment, the damage done has been but trifling. This circumstance, together with the extent of land occupied by fences, decided our mind upon the importance of removing all internal fences upon arable land. After the fences are gone the land can be cultivated instead of being obliged, as is often the case, to make short and costly work in ploughing, in consequence of crooked fences and small enclosures; for even when quickset hedges are of the best and kept neatly trimmed like a green wall in appearance, they then occupy land which will produce food for both man and beast. Fences are, however, advocated by stock farmers as a shelter for sheep both in summer and winter, still it operates badly in some cases, for wherever sheep resort for shelter, whether from the effect of the sun or storms, they leave an undue quantity of manure, which is lost or becomes useless, and this is especially the case when they are consuming costly food like oil cake. Hand labour also consists of hoeing the early-sown mangolds; and although the weather is very unfavourable for the work, yet if it is done whilst the weeds are in their infancy they will die off even in showery weather; but if the hoeing is deferred and the weather should still continue wet and unsettled the weeds will get stronger every day, and will live in spite of being cut up with the hoe. We well remember that in the year 1860, one of the wettest seasons on record, it was quite impossible to kill the weeds by hoeing; we, however, instead of several hoeings, adopted the plan of picking up and heaping the weeds in the field, and for that purpose the women followed the hoers and gathered the weeds. In this case it was the only land whereon roots were grown that was decently clean; in fact it answered the purpose so well that we should not hesitate to do the same this year should the season continue adverse and wet.

The odd horse may now be employed in carting clover for the horses and border grass for the pigs, which eat the hogweed and wild parsley, &c., but to keep the animals in good health and condition it is well to give store pigs a moderate quantity of broken maize. This, after it has been soaked in water for a few days, affords a capital diet in connection with green food of any kind. By this mode of feeding pigs a large quantity of good manure is made, because the roughest grass which may be refused serves to litter the pens, and when the manure outside the styes is allowed to accumulate the dung when removed is found to be very strong, and with earth at the bottom of the styes to absorb the urine, the pens will be found clean and healthy for the pigs. In a wet cold

time like the present the young calves will require great attention not only in their pens and the running-out for a few hours, but also in the manner of giving them milk or its substitutes. We are informed by those who have tried the new method of feeding them by the use of the patented "Lac-Trephoe" or "Challenge" feeder that it answers exceedingly well, and that after two or three days, with a little care and attention, the calves will come and suck the milk from the imitation or artificial teats as soon as the milk is put into the receptacle. This must be considered far better than the calves drinking from a bucket or trough, because there is no way in which they can be prevented from drinking it too hastily; but in sucking from the "Challenge" feeder the milk is taken slowly, mixing with the saliva, and is therefore as healthy and nutritious as when drawn from the cow.

PIGEONS—HINTS TO YOUNG AMATEURS.—No. 4.

I PASS next from Tumblers to Pouters. I do so for many reasons. They form a perfect contrast the one variety to the other. There is much that is pleasing, and in a sense picturesque, which arises from two things brought side by side which are the very opposite in appearance. Church architects of old days understood this. Thus, where in England are the most beautiful church spires? In flat Lincolnshire and Cambridgeshire. The thin tapering spire looks by contrast much the best where the country around is a dead flat. Then look at a poplar tree; a row by a canal does not look nearly so well as here and there one rising among and out far above low round-topped trees. Now the Pouter is the popular among Pigeons, and though very telling on a housetop or at one's feet walking—no, strutting, yet he never to my mind looks so well as among a number of Tumblers, and this because of the contrast. Then a Pouter cock seems always to be very pleased with Miss and Mrs. Tumbler, and coos after them and pays them every attention, while the little ladies prance in front of him on their tiny feet, and, lady-like, liking the attention of the tall fellow, show off at their best, making their neat, round, plump forms still neater, rounder, and plumper; while the Pouter rears himself higher, blows himself out, and, poplar-like, bends and bows with the wind in him, as the poplar bends and bows with the wind playing upon it. If, therefore, you have space keep one or two pairs of Pouters with your Tumblers, as each sets the other off. Then the Pouters do not in the least injure the flying of the Tumblers, as they do not attempt to rise into the air, but take a low sweep or two and then settle on the house, apparently wondering where on earth, no, in air, their little friends have gone. Next, my young amateur, you will not want to spend much money on your pets, for the simple reason probably that you have but a light purse, or those round think it not right to make a large outlay on Pigeons. This need not deter you, as although prize Pouters cost many pounds, yet there is as much pleasure to be had out of somewhat inferior birds, they being still true-bred though of less valuable colour and size. Thus, though a prize bird should measure 18 inches or more from tip of beak to end of tail, yet a Pouter measuring, say, 17 inches, is just as good a pet to the eye, save of a prize-breeder or judge. What are termed the weeds of the loft are the very birds for the young amateur, which also the great breeder is glad enough to sell cheap.

Again, a Pouter should have exact markings, so say the books and so say the judges; but in real truth the correct, the perfectly correct marking is excessively rare, and only made exact for the show pen by certain feathers being plucked out, while the majority of Pouters are very incorrectly marked. The last are the birds to suit you, and at a Pigeon sale sell for very little money. Also there are certain colours among Pouters which are reckoned very inferior. One is what is called mealy, a kind of red with reddish bars across the wings. Fancy, which makes always arbitrary rules, just like Fashion, and rarely has an eye to true beauty, has blackballed this colour; but really a good specimen is a very beautiful colour, soft and pleasing to the eye. Fancy says "No," true taste says "Yes." Fancy and Fashion are often idiotic. Fashion said crinoline was elegant, and tie-back dresses becoming; true taste declared the former was absurd, the latter as absurd. The Mealy Pouter has another virtue besides his colour—he is, perhaps, the best shaped of all Pouters. Among a group I have often singled out a cock Mealy as the best Pouter there for elegance of shape and size of crop. There are other colours cheap enough, such as the blue Chequer, the colour of an ordinary dovehouse Pigeon. This colour is not certainly so bright as the Blue, which indeed is the best of all colours in Pouters; but Chequers often breed Blues, and Blues of value too. There are also the Pouters called Mis-marked or Splashed, Whites with here and there a foul feather. All these may be bought cheaply, while the standard varieties, Blue-pied, Black-pied, Red and Yellow-pied, and Whites are, no doubt, if good very costly. I am writing for the beginner and learner, most likely for those whose purses are not deep or who wish not to be extravagant, neither do they have any prize notions running in the heads.

One thing, if you wish to enjoy Pouters. They must be where you can easily get to them—in some place where you are fre-

quently; and also their box, or boxes, or cages should be about on a level with you as you walk in and out. I knew a small tradesman who, beginning with common Pigeons, gradually achieved fancy birds. He took me to see his first pair of Pouters—a Chequer cock and Blue hen. He happened to have room in an outhouse; he put them in there with nothing better than an old egg chest for their pen. Lowering the upper sash of the widow by day the birds flew in and out straight to their egg chest, which had no front to it. The outhouse was a warehouse in which the master was frequently, and could talk to and pet his birds, hence they became perfectly tame, and would solicit a talk with him whenever he passed in or out. The Pouter is especially the sociable Pigeon; he is positively companionable. While others, such as Jacobins, which I have known kept with them flutter and fly hither and thither when anyone entered, the Pouters were ready and desirous of being noticed. Whether from their form, looking as they do straight into the human face, or from vanity engendered by their crop, for they if in health coo more than any other Pigeons, or because they naturally are indisposed to fly, preferring bowing, strutting, and short wing-clapping flights from one part of their house to another—whatever be the reasons and causes they are most sociable birds indeed; if not they are useless, for a wild Pouter does not inflate his crop, and hence looks only an awkward scared bird. Go near your birds' pens, talk to them, bow to them, especially say "hua, hua," which for generations has been said to them, and this word often repeated makes them blow out their crops, prance about, and show themselves off to perfection. Make them as tame as possible, but never poke at them with stick or finger, but talk to them. In time they will come on your hand or shoulder, and like you to stroke their backs. The tamer they are the better, and it is of little use to keep them in a high loft with flying birds, as you cannot get to them.

You may have heard that Pouters will not rear their young. Some will, but many will not; but all will feed them a few days, then shift them under the Tumblers who have young of the same age. Or, you can do as I have constantly done—rear them, if in summer, by hand; I say if in summer, because in cold nights if the old birds have actually forsaken them they will die, but do not separate them from their parents, and they will often feed them a little and also cover them at night. Soak a handful of beans in a shallow pan; they will swell in a few hours. Before feeding them add a little warm water to the beans; this will make them a suitable temperature. Open the beak with one hand's finger and thumb, and with the other hand's finger and thumb pop in a bean narrow way, and down it will go easily enough; have a little pot of water near and dip their beaks in after they have had a good feed, and soon they will learn to drink. At first five and twenty beans are enough twice a day, then fifty, and on to a hundred. Supply them with small food as they get older—seeds or wheat, and these they will learn to pick up. Children soon learn to feed young Pouters; their little hands are capital for this business. The nest for a Pouter should be large and flat, say 10 inches across by 2 deep. Tumblers for amusement in the air, Pouters for amusement in a building or on the ground. If in the country you can let them have their liberty, but they do well enough in a wired-in place. Let their night place be warm and no draughts possible.—WILTSHIRE RECTOR.

CANARY TREATMENT.

"J. S. C." says, "When the nest of young were about three weeks old I placed by the bars of the cage the materials for another nest, which was speedily made and five eggs laid." Your young birds would then be a month old, and you further say, "when the hen had sat about a week I put the young birds in a separate compartment of the cage, and they were fed through the wires by the cock." At this stage your birds would be five weeks old before they were removed from the breeding compartment where the hen was sitting. The cause of the disappearance of three of the eggs is, therefore, no surprise to us. The young birds should not have been allowed to remain with the hen so long; they interfered too much with the eggs, with their continual squatting and roosting around and partly inside the nest.

Sitting hens vary very much. Some mothers will, when their offspring approach the nest, severely chastise them by suddenly flying from the nest with open beak and extended wings, and chasing and pecking at them about the cage, generally coming off victorious and with a feather or so in her beak, which will in most cases be utilised for renovating her half-down-trodden and damaged nest. On the other hand young birds will sometimes give battle to a sitting hen for mastery of position on the nest, and it is astonishing to see with what pugnacity they will resent the attempted chastisement.

Over such turmoil much discomfort is caused to the hen whilst sitting. Not only does the entire sitting often become spoiled, but some frequently get cracked, and it is not an uncommon occurrence for surprise to be caused through the absence of such eggs, which the hen instinctively disposes of by eating them, shells included.

Let your hen again go to nesting, and no doubt she will, with

quietude and non-interruption, satisfactorily bring forth another brood of young. If you are so fortunate do not let the young remain in the breeding compartment so long. They may be separated from the hen when between three weeks and a month old, and the cock bird will attentively supply them with food through the wires as you experienced over the first nest. At five weeks old young Canaries begin to crack Canary seed, and to encourage them in this seed should be supplied in a separate trough to that containing their egg and bun crumbs. An increase of seed shells upon the cage bottom should guide you in reducing the quantity of soft food until the young feed entirely on the seed. Of course these remarks apply especially to birds when being weaned from one diet to another. When the hen lays her eggs take them away three successive mornings and replace them carefully when the fourth is laid.

If the hen does not go on satisfactorily with her next nest write again to us, detailing particulars, for we think there may be another cause of the eggs being removed from the nest.—GEO. J. BARNESBY.

VARIETIES.

In 1870 the Wrexham Local Board attempted to utilise the town sewage on a farm eighty-two acres in extent, but after two years' experience abandoned the undertaking. In 1872 Colonel Jones leased the farm at a rental of £5 per acre, and purchased for £1600 the farm buildings and other permanent improvements made by the Board. At the close of February, 1877—that is, after five years, Colonel Jones found that after paying his rent and putting aside £5 per cent. on his capital as a sinking fund he had made a nett profit of close upon £1500. Thus sewage farming is profitable when intelligently conducted.

MR. JAMES HOWARD, who has been elected President of the Agricultural Engineers' Association, in virtue of his office becomes a Royal Commissioner of the Paris Exhibition. The Association has unanimously decided not to open the British Agricultural Department at Paris on the Sunday.

In the hop plantations, says the *Farmer's Gazette*, the bine has made such vigorous progress during the past few weeks that much difficulty is experienced by the tyers in keeping pace with the rapid growth; and in some grounds the land is so moistened by the late rains that tying or nidgeting is at a standstill. Meanwhile weeds are also growing apace, and dry weather is much needed that the nidget may be speedily applied for their destruction. The flea is numerous in the Weald of Kent, but flies are scarcely observable.

THE cleaning and disinfecting of the poultry house should be done oftener than semi-annually, but a thorough cleaning-out in early spring is indispensable. After removing all utensils and fixtures—and they should all be moveable—carry out all the dirt and filth that can be swept and shovelled. Then follow with a good coat of whitewash; go over every point of the surface, floor and all. Then clean out all nest boxes, pour a little can oil in the corners, then whitewash them, together with perches and everything in or about the house, and put everything in place again. Now make a fire on the floor, if it be an earthen one as it should, or in an old iron pot or kettle if it is not, and burn half a pound each of resin and sulphur in the house, keeping all doors and windows closed as tight as possible. When the fire is burning well throw some shavings or rags saturated with crude carbolic acid on it, and thus employ the fumes of this best of all disinfectants. When all is thoroughly done open and ventilate the house, and it will be ready for its occupants, and be sweet and wholesome. The house should have such a cleaning-up three or four times each year. It is some trouble, but it will pay.—(*New York Tribune*.)

THE Royal Agricultural Society now consists of 81 life and 72 annual governors, and 2888 life, 4180 annual, and 26 hon. members, making a total of 6637. His Royal Highness the Prince of Wales has intimated his willingness to accept the presidency of the Society for the ensuing year.

A WRITER in the *American Poultry World* says that the effect of sunflower seed in glossing the plumage of fowls that eat them is very soon noticeable. Another advantage in this feed is that breaking the shell to get at the kernel—which they soon learn to do—is useful exercise, and diverts attention in confinement from egg-eating, feather-plucking, and similar mischief of idle hens.

AGRICULTURE will be prominently represented at the Paris Exhibition during the present month. The show of live stock opens on the 9th inst. and continues until the 18th. The show of dogs opens on the 26th inst. and closes July 8th. The total number of entries for the British section of the live-stock Show are—cattle, 101; sheep, 176; pigs, 106; poultry, 378; Rabbits, 10; Pigeons (couples), 18.

THE *American Cultivator* states that chickens require neither food nor drink on the day on which they are hatched. The plan of cramming peppercorns or grains of barley down the

throats of newly hatched chickens is exceedingly injurious. The best food for them is sweet coarse oatmeal mixed into a crumbly paste with milk, and a certain proportion of custard made by beating together an egg with two tablespoonfuls of milk, and "setting" it by a gentle heat. Custard so made is eaten with avidity, and the chickens make rapid progress upon it. Such a preparation is far superior to the hard-boiled egg so often employed, and which is not relished by the chickens. With regard to animal food there is none equal to the natural supply of worms and insects obtained by the hen when she is at large. Small worms or a shovelful of mould containing an ants' nest may be given if chickens are in a confined situation, and will be found far superior to boiled egg, chopped meat, or any mere artificial substitute.

A GOOD harvest is expected in the United States. According to authorities in all parts of the Union the promise of the growing crops throughout the vast and productive expanses of the Great Republic was never more encouraging. From New Jersey to California, from Texas to Maine, every State, with the single exception it is said of Colorado, reports the most brilliant prospects for the yield of every description of food for man and beast, as well as such luxuries as grapes and tobacco. There is an enormous increase of acreage under wheat, and a magnificent crop is anticipated from the great cereal-growing States of Iowa, Kansas, Nebraska, and Minnesota.

UNFAVOURABLE BEE SEASONS.

BETWEEN the years 1860 and 1870 we were favoured with many good seasons for honey—some seven or eight out of the ten. Since 1870 we have had many seasons unfavourable for bees. Last year was one of the worst ever known for bees; it was also unfavourable for farmers. The present season, so far as it has gone, has been worse than last year for bee-keepers, though much better for farmers. The crops of the farmer are most luxuriant and promising, while the stocks of apiarians are few in number and late. Days and weeks have come to British bee-keepers unaccompanied with the blessing of genial warm sunshine. The trials of bad luck in bee-keeping are discouraging to beginners, and are not unfelt by older apiarians who have often been encouraged by the successes of bygone years. Some veterans in practice who have fought many battles without knowing what defeat is have been severely tried and disappointed by their heavy losses during the last few months. This morning's post brought a letter from the north of Ireland (Ballymena) informing me that the writer of it had lost all his stocks, eleven in number, and could not find a hive in that neighbourhood wherewith to begin again.

As the weather is still unfavourable here and hives light, feeding is necessary work in the apiary. Feeding in such unfavourable springs is the safest and most profitable course to pursue. When hives are full of bees and rearing much brood, and perhaps building combs, the bees require a great deal of food to feed themselves, nurse their brood, and keep all the interests of their hives in healthy working order. Owing to the weather being so unfavourable this spring bees seldom visited the blossoms of gooseberries, plums, pears, and apples. The sycamores have not flowered at all in this neighbourhood this season. Beans are now in flower, but few of these are grown in this parish. Humble bees which pierce or tap the flowers of beans are seldom seen here now-a-days, and it is a question whether bees can tap the tubes of bean flowers and get their honey without the aid of humble bees. Beans yield a great deal of honey after their flowers have been tapped. After beans come clover, limes, brambles or blackberries, and heather. These principally have bee-keepers now to look to for honey this year.

Some hives that did not swarm last year will be late in coming to the swarming point this season, and some apiarians will hardly be able to decide whether to let them swarm or be supered. Whichever course be adopted we suggest that the old hives be not kept as stocks for another year. It is but seldom that hives which remain two seasons as non-swarmlers are free from foul brood, and many of the centre combs are loaded with farina. Sugar-fed and sugar-made stocks are incomparably better for keeping than old non-swarmlers. Those who are seeking honey and honeycomb should super their hives now or as soon as they are ready for supering, and at the end of the season drive the bees into empty hives and feed them into stocks; and those who wish to increase the number of their stocks should encourage swarming and take swarms up till the end of June.—A. PATTIGREW.

BEEES.

As none of your correspondents have noticed Mr. J. Robson's remarks at page 885 allow me to do so briefly now. Early swarms this year so early as May 2nd I should consider a calamity in such a year as this. Of course Mr. Robson's country may be singularly favoured. Here a swarm of May 2nd without liberal feeding would have probably perished—in fact both it and the parent hive. All depends upon circumstances whether early swarms

are covetable or not. In forward years I have had swarms (aye, out of "boxes") in April which have done well enough.

Again, there is no doubt that bees are better managed now than they were fifty years ago, not by the ruck of bee-keepers certainly, but by the increased number of careful apiarians which late years have produced; and as for the harvests of honey, I never heard in my boyhood of such quantities produced by single hives as are now not uncommonly yielded. We used to read of Mr. Nutt's success in this direction with utter incredulity, but the marvellous reports sent in to this Journal also by bee-masters of respectable character, whose word cannot for a moment be doubted, have paleled even Mr. Nutt's statements.

As for honey being so plentiful as to be substituted for sugar, it might have been so done in the glut of 1876, but for the fact that sugar is cheaper than honey as well as better in every way for sweetening purposes.—B. & W.

FEEDING BEES.

I HAVE been waiting for other apiarians to give their experience on this subject, but as none have sent it I will detail mine, in the hope that we may gain information by comparing notes. A correspondent (page 868) seems under the impression that the barleysugar used for feeding bees is the same as that sold in the shops, for he mentions it along with toffy, hardbake, &c., whereas it is merely sugar and water and a little vinegar boiled as described in your "Manual for the Many" on bee-keeping. I find it rather troublesome to make, as it requires boiling for a much longer time than "twenty minutes" before it sets, and sometimes it has become burnt. If burnt it is of no use, for the bees will not eat it, and it will deliquesce and drop down into the hive like thick glue.

For feeding bees in warm weather and for giving a large quantity of food for a short time I think syrup is the better, but I prefer barleysugar for feeding them in cold weather and in the spring.

Having had occasion to feed a hive during the winter months I used barleysugar, and I could give enough at one time to last a week; therefore I did not have to disturb it so often, and the bees were never without a supply, for they only seemed to use it as required, and not to store it up. I placed it over the top of the hive, and covered it with a flower pot and piece of quilt.

With regard to the barleysugar requiring moisture to dissolve it, I found the bees settled on it at once and commenced feeding, and did not go outside the hive for water. On the other hand it may be urged that syrup contains too much moisture, and this is not desirable in cold weather.

I make my syrup as recommended by Mr. Pettigrew—viz., a pound of sugar to a pint of water, so that if sprinkled over the bees they can soon get clear of it.—TOM TOWER.

PROSPECTS OF BEE-KEEPERS.

IN your issue of March 7th I concluded a paper with these words, "When the number of hives is complete in any given spring and a large quantity of honey is an object, we should be ready to prevent our bees swarming and make the whole population devote themselves to honey gathering."

I suppose that not one of your apiarian readers would differ from me in this statement, but it is for all that easier said than done. This year, for instance, no amount of provision, be it ordered in the most approved fashion—à la Pettigrew or à la "RENFREWSHIRE BEE-KEEPER"—will induce obedience to our will on the part of our bee friends, certainly not in localities like ours, in such a spring as we are having. Here in Somersetshire the whole country is either actually under water or the ground so sodden with long-continued and excessive rains that not merely honey gathering has been nil, but even breeding has been languid, and in some hives has almost discontinued. The stronger hives have not a single cell of honey sealed up that I can see; none have gone up into supers except for personal accommodation, yet we are surrounded by orchards which have been in wonderful bloom. How is swarming to be prevented under such circumstances? I expect a general sedge-knife or stampede the first sunny morning, and nothing, it seems to me, can prevent it in those stocks which are at all populous.

Let all learners, therefore, in our apiarian school know that in this science, as in all others, there is no rule without an exception. Do what you will, with all your care and provision circumstances must often rule the day; but nevertheless it is quite possible to reduce the apprehended evil to a minimum, and if swarming cannot be prevented its mischief can be very easily neutralised, for very mischievous it would be in such a season to let bees have their way, leading to a multiplication of weak and impoverished hives and paving the way for still further disappointment. I therefore strongly advise the return of all swarms at once to the parent hive where increase of stock is not a necessity. First I would have the swarm temporarily, putting it in the old stock's place; then, after carefully removing from the latter every royal cells (which in bar-framed hives are readily got at), I should at

once restore the stock to its place and set the swarm above it, of course opening all the communications; remove the temporary hive when the bees are gone down, and give plenty of super room. In this way you will have every available bee, and plenty of them, at full liberty to make the most of the precious days or hours favourable to honey gathering which may yet be granted to us this summer. Even in the common or improved straw skep it is generally possible to get at many, if not all, of the royal cells for excision. If any should escape observation, as is likely, the only remedy is to return the swarm every time it issues, destroying the queen mother, who must be caught for the purpose.

Our only hopes for this year as to honey rest now with the white clover and the heather, the latter being beyond the reach of most of us. It is too late for the usual spring supply, which is nearly over. A few really fine days might fill up the empty cells sufficiently to carry on the bees to the time of clover, but I am far from sanguine that this year will prove much less disastrous than the last, which was certainly one of the worst in my large experience of bad seasons. Bee-keepers need to have a hopeful temper in view of all this disappointment so frequently recurring.—B. & W.

OUR LETTER BOX.

BOOKS (Kingston).—Richardson's "Domestic Pigs," first published by Messrs. Orr & Co., and our "Poultry Book."

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain.
	Baromet. at 3 ³⁰ and Sea Level.	Hygromet- er.		Direction of Wind.	Temp of Air at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass		
1878. May. June.	Inches.	deg.	deg.	N. E.	deg.	deg.	deg.	deg.	deg.	In.	
We. 29	29.926	50.6	50.1	N. E.	54.3	60.4	46.7	58.0	49.3	—	
Th. 30	30.213	50.3	48.0	N. N.	53.9	58.6	47.0	58.6	47.4	—	
Fri. 31	30.058	54.9	50.3	N. N.	53.0	67.0	40.0	108.9	57.0	—	
Sat. 1	30.024	51.3	50.1	N. N.	54.7	61.8	49.1	95.1	47.3	—	
Sun. 2	30.059	53.5	49.5	S. S.	53.8	62.4	41.6	90.2	41.3	0.022	
Mo. 3	29.921	55.7	55.4	W. E.	54.3	59.8	41.6	117.7	51.0	0.415	
Tu. 4	29.775	56.7	53.0	W.	56.0	68.1	52.0	115.3	51.0	0.301	
Means	29.997	54.6	51.7		54.3	64.0	47.1	100.0	46.3	0.787	

REMARKS.

29th.—Wet morning; dull but fair rest of the day.
30th.—Fair morning, rather finer during the day, but cold.
31st.—Fine bright sunny day.
1st.—Misty, very dull in morning, fine and sunny in afternoon, fine evening but cold.
2nd.—Cold and cloudy but dry day.
3rd.—Dull hazy morning, bright afternoon, fine evening.
4th.—Heavy rain in early morning, and very heavy showers during the day; fine evening.
A moderately fine but cool week, with drenching showers on June 4th.—G. J. SYMONS.

COVENT GARDEN MARKET.—JUNE 5.

OWING to the dull weather outdoor Strawberries have not made their appearance this week as was anticipated, consequently forced fruit is in demand. English Pines will now sell better, the St. Michael's fruit coming irregularly and showing a considerable falling-off. Trade somewhat improved.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½	sieve	2	6 to 6	Melons.....	each	0	12	0
Apricots.....	dozen	1	0	3	Nectarines ..	dozen	12	0	24
Cherries	½	lb	1	6	Oranges	½	100	3	0
Chestnuts.....	bushel	10	0	30	Peaches	dozen	12	0	30
Currants	½	sieve	0	0	Pears, kitchen..	dozen	0	0	0
Figs.....	dozen	12	0	0	Pears, dessert ..	dozen	0	0	0
Filberts.....	½	lb	0	1	Pine Apples ..	½	lb	3	0
Cobs.....	½	lb	0	9	Plums.....	½	sieve	0	0
Gooseberries..	quart	0	6	0	Raspberries ..	½	lb	0	0
Grapes, hothouse	½	lb	3	0	Strawberries ..	½	lb	3	0
Lemons	½	100	6	0	Walnuts	bushel	5	0	8

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	6	to	4	Leeks	bunch	0	2	0	6
Asparagus.....	bundle	2	0	6	0	Mushrooms ..	pottle	1	6	2	0
Beans, Kidney forced	½ 100	1	0	2	0	Mustard & Cress	punnet	0	2	0	4
Beet, Red	dozen	1	6	3	0	Onions	bushel	2	6	3	0
Broccoli	bundle	0	9	1	6	Pickling	quart	0	4	0	6
Brussels Sprouts	½ sieve	0	0	0	0	Parsley.....	doz. bunches	2	0	0	0
Cabbage	dozen	1	0	2	0	Pears	quart	2	0	3	6
Carrots, new	bunch	1	6	2	0	Potatoes, frame	½ lb	0	2	0	6
Capiscums.....	½ 100	1	6	2	0	Potatoes.....	bushel	3	6	7	0
Caulliflowers...	dozen	3	0	6	0	Kidney	bushel	5	0	7	0
Celery	bundle	1	6	2	0	Radishes.....	doz. bunches	1	0	1	0
Coleworts.....	doz. bunches	2	0	4	1	Rhubarb.....	bundle	0	6	0	9
Cucumbers	each	0	4	1	0	Salsify	bundle	0	9	1	0
Endive	dozen	1	0	2	0	Scorzonera ..	bundle	1	0	0	0
Fennel.....	bunch	0	3	0	0	Seakale	basket	0	0	0	0
Garlic	½ lb.	0	6	0	0	Shallots	½ lb	0	0	0	0
Herbs	bunch	0	2	0	0	Splnach	bushel	2	6	4	0
Lettuce	dozen	1	0	2	0	Turnips, new ..	bunch	1	6	2	6

WEEKLY CALENDAR.

Day of Month	Day of Week	JUNE 13—19, 1878.	Average Temperature near London.			Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock after Sun.	Day of Year.
			Day.	Night.	Mean.	h. m.	h. m.	h. m.	h. m.	Days.	m. s.	
13	TH	Queckett (Microscopical) Club at 8 P.M.	71.8	48.4	60.1	3 44	8 15	7 27	1 37	12	0 15	164
14	F		72.3	48.6	60.5	3 44	8 16	8 37	2 28	●	0 3	165
15	S		72.9	48.8	60.3	3 44	8 16	9 29	3 23	14	before	166
16	SUN	TRINITY SUNDAY.	72.6	49.0	60.2	3 44	8 17	10 6	4 31	15	0 22	167
17	M	Royal Horticultural Society—Fruit and Floral Com.— Meteorological Society at 7 P.M. [mittees at 11 A.M.]	72.9	48.0	60.5	3 44	8 17	10 32	5 45	16	0 35	168
18	TU		72.7	49.9	61.3	3 44	8 17	10 61	7 5	17	0 48	169
19	W		70.9	49.2	60.0	3 44	8 18	11 5	8 21	18	1 1	170

From observations taken near London during forty-three years, the average day temperature of the week is 72.2°; and its night temperature 60.5°.

GROWING GRAPES IN UNHEATED HOUSES.

CONSIDERING the immense popularity of the Vine and the great importance every person attaches to Grapes, it is surprising that many who cannot afford to erect expensively heated structures in which to grow them do not resort oftener to cultivating them in unheated houses. I do not think many can be aware how well Grapes can be grown under glass without fire heat, or we should hear less about so many rows of hot-water pipes having to be placed in houses in which Grapes have to be cultivated, and all the particulars of temperature and firing so rigidly adhered to in many cases. Contrary to this, I may say that the Grapes on Vines in a house here with no means of heating it are as fine as any in the heated structures. According to appearance some bunches of the Black Hamburgs, I should say, will weigh when ripe close upon 3 lbs., and by the month of September I have no doubt they will be as well ripened, and perfectly finished in every respect, as those grown in heated houses. Of course, early Grapes cannot be grown in unheated houses, but to have fruit ripe in August it can be done perfectly, and to have a good houseful of Grapes then that will last for the next four months, and that, too, without even spending a halfpenny on fire heat, is worth considering. I hope I am not understood to say Grapes can be grown better in unheated than in heated houses, but I hold that autumn Grapes can be grown as well in the one as the other; and that in many instances fire heat is applied quite unnecessarily in summer Grape growing, and in other cases they are not grown at all, because it is supposed there is not heat enough in the house, which is generally a delusion.

An unheated vinery should be constructed on ordinary principles. It is of considerable importance that its aspect is due south, and sun heat must not be obstructed from it. The border should also be carefully made either outside or in; but do not expect success if work of this kind is done in a careless manner with the idea that as the house is not heated it is not worth while spending much time in properly preparing for the Vines. It is just attention of this kind that will compensate for the want of fire heat and render success more certain. June is the best month in all the year in which to plant Vines in unheated houses. Planted earlier, they are slow in starting into growth; later, they have not time to establish themselves thoroughly before the autumn and winter.

The details of planting Vines have been given so fully in previous numbers of the Journal that I need not go into the matter fully here, but I may say that only good, strong, healthy Vines should be planted. Eyes put-in in February and grown 4 or 5 feet high now are better for planting than last year's canes. After planting they should be shaded slightly for a few days if the sun is strong, and little or no air should be admitted until they show signs of growing. Healthy young plants soon do this; in fact when carefully planted they grow on without ever receiving a check. A moist atmosphere favours their growth at all times.

No. 908.—VOL. XXXIV., NEW SERIES.

One of the most particular points to attend to in growing Grapes in unheated houses is ventilation. This is a most important matter, not only the first year after the Vines have been planted, but in all subsequent years, as one of the chief requirements is to secure as much natural heat in the house as can be had. In giving air in the morning it should never be too much increased until the temperature is rising rapidly. We never adhere very strictly to figures, but, roughly speaking, air may be admitted when the heat is 70°, and no more should be admitted than will keep it from rising above 90° or falling below 80°. During March, April, May, and June the house should always be closed early in the afternoon before the sun goes off it and when the heat will rise to 85° or 90°. When the Grapes commence changing colour more air may be admitted, and the house need not be closed so early when the weather is favourable. Vines grown in an unheated house do not require so much syringing as hothouse Vines, as they are not so liable to become infested with insects.

In moist localities the most difficult matter connected with this kind of Grape culture is keeping the fruit after it is ripe in October and November. This, however, is not without an easy remedy, as the bunches can all be cut, the ends of the laterals on which they are hanging being inserted in bottles of water and placed in a dry room, where they will keep soundly for months.

Black Hamburg, Royal Muscadine, Buckland Sweetwater, Black Alicante, Lady Downe's, and indeed nearly every kind of Grape excepting Muscat of Alexandria, succeeds in unheated houses. Should any of your readers be interested in these notes I may say they can be verified, as last autumn the Journal mentioned approvingly the fine Grapes Mr. Harrison Weir exhibited at South Kensington from an unheated house.—A KITCHEN GARDENER.

SPRING FLOWERS.

THERE is a very general but erroneous impression that spring gardening is an elaborate, costly, laborious process, and therefore not to be attempted by anyone of limited means or restricted labour power. An earnest wish to dispel this error prompted the writing of this.

Beds of bare earth in conspicuous positions are just so many unsightly scars which it is desirable to get rid of. Bad as they are in winter, it is in spring when all wild growth arises into beauty that they become doubly offensive, and a garden thus neglected repels—almost disgusts—at the very time it ought to attract and delight. This is a test to which I have before called attention; it is so valuable as to be worth keeping prominently in sight. Amid all the freshness and brightness of spring does your garden gain by comparison with its wild surroundings? To its superior tone of refinement is there then added those of richness, fulness, warmth? Or as you turn to it from the enjoyable contemplation of wild flowers are you sensible of some void—something or many things wanting? Instead of Lilacs, Thorns, Laburnums, Azaleas, Kalmias, Andromedas, Weigelas, Ribes, Rhododendrons all bursting into beauty and affording a succession of gay blossom till advancing

No. 1350.—VOL. LIX., OLD SERIES.

summer brings her Roses to form the next link in the floral chain, do you find heavy monotonous masses of dull greenery—Laurel, Box, Yew, or an ambitious pinetum—an assemblage of Conifers without one spray of deciduous growth or one flowering shrub to lend variety, freshness, and colour? Or instead of beds gay with their peculiar spring flowers—bright masses of pink, blue, yellow, white, purple—are your beds bare as when stripped of last summer's plants, or perchance at best containing only some dwarf evergreen shrubs? If so, your garden is not as it ought to be, for if you can afford to plant shrubs at all most of those which I have named are comparatively inexpensive, and are all so beautiful as to render the work of selection by no means easy.

It is not upon the shrubs that I must now dwell, but the flower beds; for the season for raising a stock of plants for next spring is fast approaching, and I hope to induce many professional gardeners, as well as amateurs, to adopt the easy and simple method of doing so which I have now to set before them once more. Now, I suppose no one would say that the raising and planting a bed of Cabbages was a process so difficult as to render a Cabbage an expensive luxury. On the contrary, it is so easy that a good Cabbage bed is the boast of every cottager. The spring flowers with which I am able to make gay as many beds as I please are raised and cultivated precisely like Cabbages. You need not devote much space to them all at once. Take any little odd patch of garden border, dig it, make it fine, make shallow drills, sow the seeds; when the seedlings are large enough prick them out a few inches apart, give a little water, keep down weeds, and transplant to the flower beds in autumn immediately after the summer plants are cleared away. This is the entire cultural process; no glass, no artificial heat, and certainly not very laborious.

The first seed to sow is the Forget-me-not, and the sort which I find answers best for large masses is the lovely blue one, *Myosotis sylvatica*, and its white variety *alba*; both must be sown in the second or not later than the third week in June, so no time must be lost in ordering the seed, which is very small, and a sixpenny packet of each will suffice for a large garden. If you want variety and very early flowers you may add *M. dissitiflora*, a fine blue, costing a shilling a packet; but I am quite content with *sylvatica* and so are the bees, which haunt the beds by hundreds on every sunny day. Next in order of sowing is the deep pink *Silene pendula* and *S. pendula alba*, to be sown not later than the third week in July. Then come the pretty little Soapworts, *Saponaria calabrica* and *S. calabrica alba*, forming charming dwarf masses of pink and white. They are sown the second week in August, and at the same time sow some Golden Feather *Pyrethrum* for an edging to the pink *Saponaria*. The seed of all these, including both sorts of *Silene*, costs sixpence a packet, and you are not likely to require more than a packet of each. At the end of August we must sow the delicate blue *Nemophila insignis*, the purple *Collinsia grandiflora*, and the yellow *Limnanthes Douglasii*. We shall therefore require ten packets of seed at a cost of 5s. if we have the whole of my selection.

Let me add one word as to soil. Many hardy plants are killed in winter from being planted in heavy adhesive soil; it ought therefore to be an imperative rule to make the soil light and open with plenty of gritty matter, and to raise the beds well above the level of the surrounding surface.—EDW. LUCKHURST.

EARLY VEGETABLES.

On the 3rd of June I gathered our first Peas from the open from William I. and Dickson's First and Best, being eleven days earlier than last year. For the most successful way to grow early Peas see page 132, Feb. 14th, 1878; see also what an occasional correspondent has to say at page 168, Feb. 28th, 1878. He says it is a delusion to grow Peas as described at page 132; if so, why should he grow his Little Gem in the orchard house? I have had the pleasure of seeing his Little Gem Peas growing in his orchard house, and certainly they were the most perfect delusion I have ever seen in Pea-growing. By growing Peas as described at page 132 they do not require to be rolled in; they do not require to be coated with red lead to keep off mice; when breaking they require no coal ashes to keep off slugs; and lastly, they do not require three strings of worsted to keep away the sparrows.

I on the same day dug the Alma kidney Potatoes from the open. I find this variety twelve days earlier than Rivers' Royal Ashleaf, but the earliest of all kidney Potatoes is to be the Early Bird. I have not proved this variety; it is a beau-

tiful-looking Potato. The whole of the stock has passed into the hands of Mr. Turner of Slough. All those who desire to have a beautiful-looking and a good keeping Potato should think of the Early Bird whenever it is sent out.—R. NISBET, *Aswarby Park Gardens, Folkingham.*

RULES FOR JUDGING ROSES.

I HOPE I am not premature or intrusive in venturing to offer a suggestion that the admirable and comprehensive code of rules lately compiled under the authority of the National Rose Society for the guidance of Rose judges, including well-drawn definitions of the constituent properties of (1) a bad, and (2) a good Rose, might very advantageously for the public find a place in all horticultural papers, and *a priori* in our Rose Journal.

I believe I am right in saying the whole subject was taken into consideration at the meeting, when the list of judges, amateur and nurserymen, was pricked off for the metropolitan and provincial National Rose shows, after their names had been previously submitted to the General Committee for their selection. Now I have always consistently opposed this mode of proceeding for reasons already given in these columns, but chiefly because I consider it a work of supererogation and but too likely to stir up troubled waters where for several years an unvaried calm has most agreeably prevailed. I hold, however, and many of my friends agree with me, that it is an entirely different matter to issue a code of rules for the guidance and enlightenment of young amateurs and gentlemen's gardeners (the latter, I will do the justice to say, are always ready to lend a hand where their services are required), who essay to try their prentice hands as Rose judges at country exhibitions; and for the encouragement of so useful an object, where so much doubt and ignorance prevail, publicity should be given as wide and as speedily as possible.—THE HEREFORDSHIRE INCUMBENT.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

THIS useful Society held its ordinary monthly meeting on the 4th of June in St. Andrew Square, Edinburgh. About a hundred members were present. The President occupied the chair. After admitting twenty-three new members Mr. Hugh Fraser gave his results of *Rhododendron* hybridising, described shortly the history of the plant, and spoke of its introduction at different times into this country. He named the few varieties that existed in 1830 compared with the numbers that are now in commerce, all the products of the meagre materials at command nearly fifty years ago. He detailed some of our finest specimens, giving their parentage, and stating how they were crossed.

Mr. J. Spiers, schoolmaster, Haddington, next read a paper on the history of the Haddingtonshire Ancient Fraternity of Free Gardeners. Mr. Spiers said that the minutes, proceedings, and members of this fraternity are correctly recorded since the 16th of August, 1676, and there are traces on the minutes that this body must have existed for a much longer period. As far back as 1774 monthly meetings have been held, and previously to that meetings were held four times a year. In 1671 prizes were offered for Carnations, and competitions have taken place each year since. The public spirit which has always characterised this Society was abundantly proved by Mr. Spiers quoting extracts from minutes of the resolutions passed from time to time. Both gentlemen were thanked for their communications.

Messrs. Dickson & Co. exhibited *Rhododendron Broughtonii superba*; T. Methven and Sons, *Rhododendron Cinnabarina*; John Carson, Miles' Spiral Mignonette; Mark King, Scarlet East Lothian Stock. The following awards were made by the New-Flowers Committee:—Ireland & Thomson, *Gloxinia* Mrs. Smart, commended; and Petunia Craigleith Beauty, certificated. Dickson and Co., fancy Pansy Hugh Fraser, certificated; Memento and Empress, commended. Downie & Laird, fancy Pansies Lady Clerk, Lady Falmouth, and Mrs. Wolfe Murray, certificated; Lady Hay and A. McLeod, commended.

VILLA GARDENS.

ENCLOSURES irregular in shape and limited in size are commonly attached to suburban residences. A type of these is represented in the accompanying plan (fig. 67), which with certain modifications is applicable to other plots that may vary somewhat in size and outline from the figure submitted. The length of the present enclosure is 136 feet, the width at the widest end next the house being 70 feet, and at the narrow end next the road 58 feet. This unequal-sided oblong strip is so narrow that I have made no attempt to take the path from the gate

to the front door along either side, but have made it an important feature of the garden by taking it in graceful curves

prevent any overlooking of the garden from the gate. The house and south side of the north wall may be turned to account for Tea Roses and climbing plants. The nooks, F F, for a fernery, are of course intended to be shaded by the trees and shrubs. The sides of these nooks should be raised high and steep with rocks and roots mingled with soil, plenty of pockets and ledges being made for the Ferns. The scale is one-twentieth of an inch to a foot; and as the boundaries of the garden are so peculiar, all four sides being unequal, and only one corner being a true right angle, its form is not a common one, and the design could not be adapted to another oblong without, as before observed, some modification. If it were an indispensable necessity that the path from the gate to the front door should not overlook the garden I would put the gate at the north-east corner and make a sunken path inside the north wall, throwing up a high narrow bank along the other side with a dense growth of shrubs along the top, and Ferns and trailers upon the side.—EDWARD LUCKHURST.

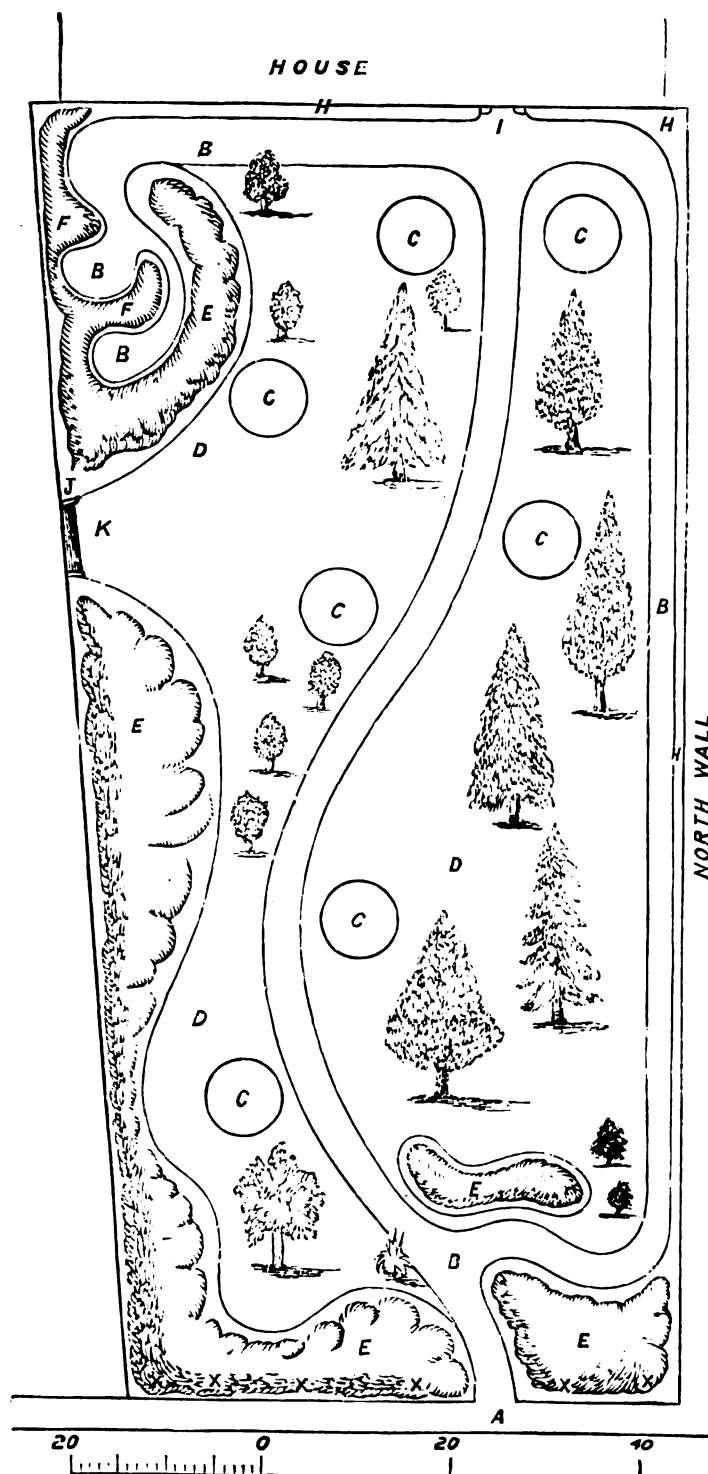


Fig. 67.

A, Gate.
B, Gravel.
C, Flower beds.
D, Turf.
E, Shrubs.

F, Fernery.
H, Border for creepers.
I, Front door.
J, Tree to hang over seat K.
X X, Trees already in the garden.

through its centre. The shrubs by the east fence will screen the garden from the road and the bed of shrubs, E E, will

attention at the same time. In company with Mr. Crehan, head gardener at Minella House, we visited yesterday the gardens

THE STRAWBERRY—SYSTEMS OF CULTIVATION.

No preparatory observations are necessary to enlist the sympathy of the general reader, whether professional, horticultural, or amateur, while endeavouring to sketch out a more enlightened and successful system of cultivation than generally prevails for this popular, easily grown, and delicious fruit. This has been partially done by an intelligent correspondent in your issue of the 1st inst., with whose object I agree, while with his system—that of preliminary growth in thumb pots—I shall immediately state my reasons for differing. While doing so I cannot do better than sketch out briefly four systems of growth and methods of propagation, any one of which has many points to commend it.

1, By placing small pots underneath the runners at the proper time, and causing the future young plants to root into them by pegging-down or otherwise until the roots are established. This is convenient, inasmuch as after cutting the runner away from the old plant you have your future young one established. But in practice, and for general adoption on a large scale, it has the following disadvantages:—

a, It requires an immense number of small pots and an immense amount of spare time to do the potting, &c.

b, During hot weather, as one is pretty certain to have at that time, half an hour's very hot sun will kill outright a young tender Strawberry plant, even if rooted, and leave it worthless.

c, As vigorous growth is essential from the commencement (if one is not to wait for a second or third year before having a full crop), the growth is generally stunted in small pots; in fact, "caged, cabined, and confined." I believe the system would only commend itself to amateurs having sufficient time to devote to wooing success in watering, feeding, and watching, and who make Strawberry growth a specialty.

2, By lifting the young plants after being rooted naturally into a mulched or previously prepared space between the drills or beds with a trowel, and arranging them in suitable lines where they are to remain. This is perhaps the most convenient, certain, and expeditious system, and entails the least amount of care or trouble—an important consideration at this time of the year when flower, vegetable, and fruit gardens, orchard house, vinery, greenhouse, stove, &c., all require

and grounds attached to the now stately renovated ancestral residence of Captain Moore, M.P., Barne House, near this town, and among very much I should be tempted to digress to notice were some beds of the finest and healthiest-looking Strawberries it has been our satisfaction to see, and grown as above indicated.

3. Mr. Crehan, already mentioned, gives a preference to the following system after many experiments:—Cause your intended young plants to root into a loamy sod from which a portion of the clay has been shook, cut diamond or square shaped, and of only a few inches dimensions, which can at your leisure be transferred to the beds or lines where they are intended to fruit.

4. I may notice what has been called the American system. It consists in the gradual renovation at intervals of the beds, or, better, of the drills, by manuring or otherwise preparing the spaces between and allowing the future young plants to root into the same, then wholly removing the old ones. This has the recommendation that a young stock is maintained, the ground is all changed ultimately, and what is of much moment to those limited in space, the same ground may be constantly used, and saves all the time that would be expended in making new beds.

These observations would be incomplete without saying something of soil and situation. All soils will grow the Strawberry, but the least desirable would seem to be a rich deep one containing a large per-centage of decomposing vegetable matter. In such the roots descend deeply, and you have a splendid crop of leaves and tall flower stems but no fruit, except something poor and small and of very inferior flavour. One has only to observe that some of the finest berries are produced near the gravel walk and in comparatively shallow soil where sun and air—which for flavour are indispensable—have full influence and effect.—W. J. M., *Clonmel*.

MANCHESTER NATIONAL HORTICULTURAL

EXHIBITION, JUNE 7TH TO 14TH.

SUCH is the title of the summer Show of the Royal Botanical and Horticultural Society—a term which, as regards the size and quality of the Exhibition, it merits, and also because nurserymen of national fame are admirably represented in the Royal Botanical Gardens at Old Trafford. Mr. B. S. Williams, Messrs. Rollisson and Son, Messrs. Lane & Son, Messrs. Standish & Co., Mr. Richard Smith, and Mr. Anthony Waterer all arrange collections of great value, and which contribute in an important manner to the success of the Exhibition. The amateurs' classes are occupied almost entirely by local exhibitors, the most notable exception being Mr. Pilgrim of Cheltenham, and right well do they sustain the horticultural reputation of the manufacturing districts. When Mr. Shuttleworth stages his unrivalled specimens, and Mr. O. O. Wrigley and Dr. Ainsworth bring out their magnificent Orchids, a treat is afforded to the public of no ordinary value.

What week is an historical festival in the Manchester district, and high holiday is kept by all classes of the community. Thus it is that the Society opportunely adopt the festival, to speak paradoxically, as the fixture of their principal shows, for a fixture it is, yet necessarily moveable. It is more than ten years since Whitsuntide has occurred so late as this year, and on this account—the lateness of the date—the Exhibition to some extent suffers. The bulk of Azaleas is over, many hardwooded plants have lost their freshness, and the magnificent Roses of Messrs. Turner and Paul finished their season's career at South Kensington during the closing days of May. Yet notwithstanding the absence of those marvellous specimens the Manchester Show is an excellent one, the Orchids alone being worthy of a journey from one end of England to the other by those wishing to see by far the finest display of these gorgeous plants that has been arranged at any exhibition this year.

The principal collections of plants are arranged in the large conservatory, a long span-roofed structure with lofty sides. The only entrance is at one end, the opposite end being occupied by the amateurs' collections of twenty plants in flower. The sides of the building are furnished by collections of Palms, Ferns, and ornamental-foliated and flowering plants in competition, and in front of these are the Orchids. Down the centre is a table containing fruit and bouquets at the end next the entrance, the remaining portion being occupied with miscellaneous collections of plants from Messrs. Williams and Rollisson, elevated above which are, forming a central row, the competing collections of Dracænas from those nurserymen. The effect of the building when viewed from the entrance is extremely rich and imposing; the specimens also well bear individual examination. First to arrest attention are the

ORCHIDS.—Three classes are provided for amateurs and two for nurserymen, the prizes offered amounting to £140 exclusive of the Veitch memorial medal and prize of £5. Although the

nurserymen, Messrs. Williams and Rollisson, exhibit collections of great merit, they are not by any means equal to the splendid contributions of the amateurs. The collections of O. O. Wrigley, Esq. (Mr. Hubbersty, gardener), and Dr. Ainsworth, who are placed first and second respectively in the class for fifteen plants, are magnificent. Mr. Wrigley's plants consist of *Masdevallia Lindeni*, about 8 feet across and bearing perhaps two hundred fine flowers; *M. Harryana*, nearly as large and very rich; *M. sanguinea*, still richer; *Thunia Marshallii*, nine spikes, fine; *Vanda suavis*, twelve spikes, very vigorous; *Calanthe veratrifolia*, fifty spikes, a mass of purity, 4 feet high and more than half that in diameter; *Cattleya Warnerii*, fourteen handsome flowers; *Dendrobium Schroederi*, 2 feet across; *Saccolabium guttatum giganteum*, four splendid and finely spotted racemes; *Odontoglossum vexillarium*, a compact healthy specimen with between sixty and seventy flowers and buds; *Cypripedium niveum*, 2 feet in diameter and forty flowers; *C. Veitchii*, one of the most chastely beautiful of the genus, has ten flowers; *C. villosum*, *Anguloa uniflora*, and last, but not least, *Anguloa Clowesii*. The foliage of this remarkable specimen is nearly 2 feet long and 6 inches broad, and has a spread of nearly 4 feet, and beneath it are quite fifty rich golden flowers. Fine as this specimen undoubtedly is, and awarded as it was the "Veitch memorial prize," it is certainly not the finest Orchid in the Exhibition. That honour we learned was awarded under a misapprehension on the part of the Judges, that the prize was intended for the best plant in the winning collection. The schedule, it must be added, is not so clear as is desirable in regard to this prize, for it is there made a separate class (39), while the prize was awarded to a plant in Class 5. The plant that on its merits ought to have had the high honour in question was a marvellous specimen of *Vanda suavis* belonging to Dr. Ainsworth in the second-prize collection. This plant is 4 feet high and nearly the same in diameter, is in superb condition as regards health and luxuriant foliage, and has fifteen spikes and about 120 fine flowers, and is altogether a grand example of culture. Other plants in this collection are *Oncidium spheculatum*, 6 feet high and 4 in diameter; *Cattleya Mossiae superba*, 2 feet across, forty grand flowers; *C. Skinneri*, twelve splendid flowers; *Masdevallia Veitchii* and *Saccolabium præmorsum*, nine richly spotted racemes, very elegant; *Aërides virens*, twelve, and *A. Schroederi*, seven spikes; *Vanda tricolor Ainsworthii*, five spikes, very rich; and *V. Dennisonii*, two spikes of waxy flowers; *Phalænopsis amabilis*, five spikes; *P. grandiflora*, a splendid mass, 3 feet high and 2 in diameter; and *P. Lüddemanniana*, 18 inches across and about forty flowers; and *Lælia purpurata*, a luxuriant plant with ten spikes. Collections such as these are never seen in London, for both of them are superior to that staged by Mr. Hubbersty when he won the £50 prize at the Westminster Aquarium three years ago. Joseph Broome, Esq., Didsbury (Mr. Williams, gardener), has the third prize for smaller but well-flowered specimens. In the class for nine plants the two redoubtable exhibitors first named have the same positions as before, and with similarly splendidly grown plants—indeed duplicates in a great measure of the plants above named.

In the class for six plants, from which exhibitors in the previous classes were excluded, Mr. Bolt, gardener to W. Turner, Esq., Winsford, has the premier position with *Cattleya Mossiae*, 2½ feet across, very dwarf, and having forty beautiful flowers; *Dendrobium Bensoniæ*, a floral mass 18 inches high, and about the same in diameter; *D. Schroederi*, six racemes; *Lælia purpurata*, three spikes, twelve flowers; *Cypripedium caudatum*, seven spikes, three flowers on each, wonderfully fine and vigorous; and a richly coloured and excellent variety of *Odontoglossum Alexandræ* with two tall and massive spikes. Mr. Bruce, gardener to J. Fildes, Esq., Stretford, is placed second. He stages three *Dendrobiums*—*nobile*, *Schroederi*, and *Bensoniæ*; *Vanda tricolor*, *Lælia purpurata*, and *Cattleya Mossiæ*, all in admirable condition. Third honours going to Mr. Vickers, gardener to J. Heywood, Esq., Stretford, for a highly creditable collection. *Cattleya Warnerii* in this group has strikingly beautiful flowers. The first prize for the best specimen Orchid in flower was awarded to Mr. Bolt, gardener to W. Turner, Esq., for *Saccolabium præmorsum* with six racemes, five of them being 18 inches in length, the flowers being in excellent colour.

Deserving also of prominent notice are the nurserymen's collections of twenty and twelve plants. Mr. B. S. Williams secures the premier prizes in both classes. Formidable, however, as these collections are, Messrs. Rollisson are close seconds, both firms exhibiting remarkably well. In Mr. Williams's collection we noticed *Cattleya Warnerii*, six splendid flowers; *C. Mossiæ superba*, 2 feet across, twenty flowers, very fine; *C. lobata*; *Dendrobium Bensoniæ*, *thyrsoflorum*, and *nobile*, fine; *Odontoglossum Roezlii*, *vexillarium*, and *Alexandræ*, very fine; *Vanda tricolor insignis*; *Oncidium crispum* and *sarcodes*, both good; *Masdevallia Harryana*; *Lælia purpurata*, three grand flowers; *Cypripedium niveum*, nearly 2 feet across, fifty flowers, excellent; *C. barbatum superbum*, twenty flowers, and *C. caudatum*; *Epidendrum vitellinum majus*, nine spikes, very bright; and a very fine example of *Orchis foliosa*. Messrs. Rollisson's:—*Oncidium crispum*, 5 feet high, fine; *O. flexuosum*, and *O. sessile*; *Odontoglossum*

hastilabium; *Lælia purpurata*, twenty flowers; *Epidendrum prismatocarpum*; *Vanda suavis*; *Brassavola Digbyana*, strikingly fringed lip, rarely seen at exhibitions; *Anguloa Clowesii*, twelve flowers; *Cattleya Mossie*, splendid blooms; *Dendrobium Falconeri*, fifteen handsome flowers; *D. suavisimum*, very rich; *D. Devonianum*, 2 feet in diameter, 3 feet high, densely laden with fringed flowers; *Orchis foliosa*, twelve spikes; *Masdevallia Harryana*; and *Cypripedium caudatum*, twelve flowers; *C. barbattum grandiflorum*, fifteen magnificent flowers; and the finest example of the lovely *C. spectabile* that has been seen during recent years. The mass is trained in the form of a half globe, the fifty or sixty fine flowers being arranged just above luxuriant foliage; it is quite a model example of this charming and easily cultivated terrestrial Orchid. The collections of twelve plants arranged by the same exhibitors are similarly fine, the sixty-four plants in the two collections forming a brilliant fringe to the Ferns, and extend nearly the entire length of the building.

NEW PLANTS.—These are arranged by Messrs. Williams and Rollisson, who are awarded prizes in the order named. Mr. Williams exhibits a fine specimen of *Phyllotænium Lindenii* and a still finer example of the distinguished Tree Fern *Cyathea Burkei*; *Phychosepma rupicola*, a grand Palm; *Cycas media*, the stately and massive *Geonoma Seemanii*, *Kentia Mooreana*, an admirable example of a valuable Palm; *Microlepia hirta cristata*, a fresh and elegant Fern; and *Crotons Prince of Wales*, a brightly coloured spiral-leaved variety, and *Queen Victoria*, but not so richly coloured as we have seen it—an admirable group. Messrs. Rollisson's new plants consist of *Cyphokentia macrocarpa*, a distinct Palm of commanding appearance; *Dracena Goldieana*, and a fine example of the stately *D. Gladstonei*; *Crotons Queen Victoria* and *Rex*; *Grevillea filicifolia*, very free and elegant; *Tillandsia caracasana*, much marbled; *Cyathea Burkei*; *Alsophila Inrayi*, very distinct; *Anthurium Laucheanum*, *Erica Dennisonii*, and *E. obbata exposita*. This is a splendid variety with large white bells perfectly smooth and glassy, which adds considerably to its value; it should have a place in all collections. Both of those firms also stage many new plants in their extensive miscellaneous collections. They also compete in the nurserymen's class for ten *Dracenas*, and here again stage several new varieties. In this class Tooting beats Holloway with excellently grown and finely coloured examples of *Goldieana*, *Baptistii*, *Rebecca*, *amabilis*, *metallica*, *Nitzschneri*, *fine*; *Salmonia*, *Imperator*, *Recurva*, and *Regina*. Mr. Williams's plants, which are a shade smaller, but in no other points inferior, are *terminalis alba*, *Robinsoniana*, *Frederickii*, *Baptistii*, *Berkleyi*, *Imperator*, *ferrea grandis*, *amabilis*, and *Goldieana*. We could not fail noticing the superiority of those varieties over the much larger plants staged in the amateurs' class by O. O. Wrigley, Esq., Joseph Broome, Esq., and Lord Hill (Mr. Gratt, gardener)—fine healthy plants, but sombre in comparison with the newer and smaller London specimens. In the class for *Crotons* Mr. Williams wins first honours, also with varieties of recent introduction—namely, *Queen Victoria*, *Veitchii*, *Andreanus*, *Prince of Wales*, *Splendidus*, and *Disraeli*. Messrs. Cole & Son, Withington, have the second prize in this class.

In the amateurs' class for six new and rare plants in or out of flower Mr. Shuttleworth has an easy triumph with *Ixora regina*, 3 feet in diameter, fine; *Croton picturatus*, *Aralia elegantissima*, 3 feet high and through; *Croton Disraeli*, *Gleichenia rupestris glaucescens*, a fine specimen 4 feet in diameter; and *Nepenthes Hookeriana* with leaves almost white, but having a rather sickly appearance.

STOVE AND GREENHOUSE PLANTS.—These are also chiefly arranged in the conservatory. In the class for twenty plants in flower T. M. Shuttleworth, Esq., Howick House, Preston, is placed first, and E. Pilgrim, Esq., Cheltenham, second. It is no easy matter to stage twenty plants in flower without having to include some specimens of only moderate merit. Amongst Mr. Shuttleworth's plants we noticed *Pimelea mirabilis*, 5 feet through; two large pink *Azaleas*; *Lapageria alba*, fine plant but flowers not expanded; *Hedera fuchsoides* and *tulipifera*, *Bougainvillea glabra*, *Allamanda nobilis*, splendid blooms; *Dipladenia Brearleyana*, twenty flowers; *Franciscoea confertifolia*, *Acrophyllum venosum*, *Erica tricolor elegans*, *Dracophyllum gracile*, *Aphelexis macrantha rosea*, 5 feet in diameter, very good; *Anthurium Scherzerianum*, large and fine; *Ixora coccinea*, and *Statiea profusa*. The last-named plant is the most effective in the group; it is nearly or quite 6 feet in diameter, the flowers being in splendid colour. Mr. Pilgrim's plants are more irregular in size, but the group contains several meritorious specimens, but some of them appear rather drawn as if by having been retarded; yet, notwithstanding, Cheltenham runs Preston rather closely.

In the amateurs' class for sixteen plants, eight foliage and eight in flower, the collections are excellent. E. Pilgrim, Esq., wins the premier position. The flowering plants are a beautifully fresh *Stephanotis*, a very fine *Anthurium*, *Aphelexis macrantha rosea*, *Ixora Williamsii*, a plant with twenty grand heads of flowers; *I. Pilgrimii*, very bright; *Erica tricolor impressa*, 4 feet in diameter, very fresh; *Hedera tulipifera*, and *Clerodendron Balfourianum*, a perfect globe $\frac{1}{2}$ feet in diameter. The foliage plants are *Phormium tenax variegatum*, two *Crotons*,

three large Palms, a fine Cycad, and a *Gleichenia*—all large and admirably grown specimens. H. Samson, Esq., Bowdon, is a close second. *Ixora Colei*, *I. coccinea*, *Allamanda grandiflora*, and especially *Dipladenia amabilis*, are remarkably fine; and excellent also are the fine-foliaged plants. J. Rylands, Esq., Stretford (Mr. Smith, gardener), was placed third with a collection of great merit. The nurserymen's class of fifteen stove and greenhouse plants in flower is not so well represented as the amateurs' classes. Messrs. Cole & Sons, Withington, had the premier position, but, excepting the large *Azaleas*, the specimens are not noteworthy. They are also placed first in the nurserymen's class for *Ericas*, and Mr. Pilgrim has the chief place in the amateurs' class; both collections contain a few good specimens, but the majority are somewhat drawn and not well furnished at the base. In the amateurs' class of twenty plants in or out of flower J. Rylands, Esq., stages a collection containing many excellent plants, and was awarded the first prize. A grand example of *Nepenthes Hookerii* in this group attracts considerable attention; it is very vigorous and fine. H. Samson, Esq., Bowdon, has the second place. The good old *Croton angustifolius* is very brilliant in this collection. *Azaleas* are not superior, although Messrs. Cole win the first position with large and well-flowered specimens. As a rule hardwooded greenhouse plants are not by any means so well represented as

ORNAMENTAL-FOLIAGED PLANTS AND FERNS.—In the amateurs' class of eight fine-foliaged plants Mr. Elkin, gardener to F. H. Birley, Esq., Pendleton, secures the premier place with a capital collection consisting of three *Crotons*, two large Palms, a Tree Fern, variegated *Yucca*, and a *Theophrasta*; E. Boden, Esq. (Mr. Carfield, gardener) being placed second. The same exhibitor is placed second in the class for four Palms; J. Rylands, Esq., winning first honours with remarkably fine examples of *Latania borbonica* and *rubra*, *Brahea filamentosa*, and *Thrinax elegantissima*.

Most of the plants above referred to, and many more, are arranged in the conservatory. The following, except the grand exotic Ferns from Howick House and the *Filices* from Messrs. Standish & Co., are displayed under canvas. The roof of this exhibition tent, which is considerably more than 100 yards in length, is formed of a framework of iron, and is, we learn, to be glazed, which will greatly enhance the value of the space enclosed. The ground at the ends of this tent is raised, and from the elevation, at one end at least, a commanding view is had of the Exhibition. The central walk partly overshadowed with splendid Tree Ferns from Messrs. James Dickson & Co., who secure the first prize for them, and fine Palms from Sir James Watts, Bart., Abney Hall, Cheshire (Mr. Mackellar, gardener); gorgeous groups of *Rhododendrons* sobered by graceful collections of Ferns, also banks of *Pelargoniums*, *Roses*, and *Lycopods*, produce an imposing and picturesque effect. It is a question of taste as to whether the *Rhododendrons* or Ferns in this tent bear the palm of supremacy. Perhaps, however, the last may justly be placed first, and we will therefore briefly notice the

Ferns.—These throughout the Exhibition are very superior. In the amateurs' class for nine stove and greenhouse Ferns, distinct, Mr. O. O. Wrigley wins first honours with a grand collection composed of *Cyathea dealbata*, 8 feet high, with a spread of fronds of about 15 feet; *Cibotium princeps*, head 12 feet across; C. Schiedeii; *Gleichenia flabellata*, *speluncæ*, and *rupestris* 6 feet in diameter, and G. Mendeli, a grand specimen of 5 feet across; *Davallia elegans* of the same size, and *D. polyantha* much larger and in remarkable colour. Opposite to this fine group and nearly equal in value is the notable second-prize collection of Mr. Samson. *Brainea insignis*, a striking specimen, is in robust health; and in fine contrast is the elegant *Pteris scaberula*, 4 feet in diameter. *Dicksonia fibrosa* distinct by its much-cut pinnae. *Gleichenia dichotoma* and *Cibotium Schiedeii* command attention in this excellent group. Hardy Ferns are also admirably represented, the premier prize for twelve plants being secured by Henry Crowe, Esq., Greenheys, with remarkably fine specimens of *Lastrea Filix-mas Barnesii*, *L. F.-m. cristata*, *Osmunda regalis*, *O. regalis cristata*, *O. gracile*, *Oncoclea sensibilis*, *Athyrium Filix-femina Craigii*, *A. F.-f. todeoides*, *A. F.-f. plumosum*, *Polystichum angulare plumosum*, *Lastrea dilatata lepidota*, and *Scolopendrium vulgare*. A finer collection has not been seen at any exhibition this year. J. Kershaw, Esq., Messrs. Rollisson, and other exhibitors arranged collections of great merit. The finest Filmy Ferns in the Exhibition are arranged by Messrs. J. Standish & Co. They consist of *Hymenophyllum flexuosum*, *cruentum*, and *demissum*, *Todeas* (*Leptopteris*) *pellucida* and *superba*, and *Trichomanes radicans*, all being large and in superior condition.

Lycopodiums are also extremely good, especially the first-prize collection of six pans from H. Bailey, Esq., Pendleton (Mr. Elkin, gardener). They are *Selaginella caulescens*, *Wallichii*, *laevigata*, *africana*, *microphylla*, and *Wildenovi*. The plants are 3 to 4 feet in diameter and in luxuriant health. *S. umbrosa* and *S. atroviridis* in the collection of J. Kershaw, Esq., Cheetham Hill (Mr. Gresty, gardener), are excellently grown and very noticeable. The beauty of these pans was enhanced by the remarkable pots of *Lilium auratum* exhibited by J. Fildes, Esq., and to which the *Lycopods* formed an appropriate margin. Those Lilies are 8 feet high, and

the blooms and expanding buds in each pot will certainly exceed a hundred; they are very fine indeed.

RHODODENDRONS.—Very liberal prizes were offered for these gorgeous shrubs, and collections of great merit are arranged. For a hundred plants the first prize of £25 was awarded to Messrs. Lane & Sons, Great Berkhamstead, Messrs. J. & W. Yates, Manchester, being placed second; they are second also in the class for thirty plants, Mr. A. Waterer having the premier place. In the amateurs' class for twelve plants Mr. Vickers, gardener to J. Heywood, Esq., Stretford, won the premier position with excellent plants in superior varieties. The effect of the gorgeous masses of these shrubs as seen through the vistas of Ferns is very striking. As to the varieties, we can only say that the best white in the Exhibition is *Purity*, the best blush *The Queen*, the best salmon *Mrs. Holford*, the best lilac *Everestianum*, the best rich purple *Sir T. Sebright*, the best claret *Sir J. Whitworth*, and the best crimson *Michael Waterer*.

ROSES AND PELARGONIUMS.—The absence of the giant Roses from Slough and Cheshunt was a theme of general regret. Messrs. Lane & Son secure the chief prizes in the classes for thirty and twenty-five plants respectively with compact well-grown examples, each plant having about a dozen good blooms. In the amateurs' classes the prizes were awarded to Mr. Cooper, gardener to W. J. Legh, Esq., M.P., Lyne Hall, and W. Brookbank, Esq., Didsbury, for untrained plants with good foliage and a few fine blooms. Pelargoniums are fairly represented, but the specimens, excepting perhaps the Tricolors, are not by any means equal to the plants usually staged at the London shows. Messrs. Lazenby & Sons, York, stage certainly the best but not the largest specimens in the Show class, and Mr. C. Rylance, Ormskirk, the best Fancies. The first-prize Zonals are from J. G. Silkenstadt, Esq., Didsbury (Mr. Humphreys, gardener), and the best Tricolors, and very good they are, are from E. Rogerson, Esq., Cheadle. The plants are half globes, 3 feet in diameter, fresh in foliage, and good in colour.

There is yet another huge marquee containing the collections of plants arranged for effect—*Nepenthes*, hardy plants, fruit, and cut flowers.

The £25 prize offered for a collection of plants artistically arranged in a space 25 feet long by 15 feet wide, is won by Messrs. Cauldwell & Sons, Knutsford, the remaining prizewinners being Messrs. Ker & Sons, Liverpool, and the Preston Nursery Company. The first-prize collection is composed of much the finest plants, but is not arranged with superior, if equal, taste to the others; but all the groups are far behind such free combinations as Mr. Wills produces at the London exhibitions.

Hardy plants are well represented, the lead being taken by Messrs. Rolleston & Sons with a varied and excellent collection, followed by Mr. Yates. In fine contrast to the hardy flowers are the highly meritorious collections of *Sarracenias*, *Nepenthes*, &c., from O. O. Wrigley, Esq., and Dr. Ainsworth, who are awarded the prizes in the order named. The plants are splendidly cultivated and command much attention.

Cut flowers are not extensively exhibited, but bouquets are tolerably numerous, moderate in size, and generally good. Messrs. Turner Brothers, Liverpool; Mr. Rylance, Ormskirk; and Mr. Cypher, Cheltenham, secure the prizes. Mr. Cannell exhibits cut trusses of sixty varieties of Zonal Pelargoniums, thirty single and thirty double, which no doubt surpass anything in their way hitherto seen at Manchester. They are extremely fine, and very good also are the *Mimulus* from the same exhibitor. These are very suitable plants for the moist district of Manchester, where Pansies evidently thrive well, many being well exhibited in pots. Mr. Hooper, Bath, stages a large collection of Pansies, the *Selfs* and Fancies being especially brilliant in colour; also double *Pyrethrums*. Mr. Richard Smith, Worcester, exhibits cut blooms of *Clematis* *Princess Beatrice*, colour silvery lilac, petals broad and of great substance, the flowers being of superior form and 6 inches in diameter. A first-class certificate was awarded for this splendid *Clematis*.

FRUIT.—Only four classes are provided for fruit, but the prizes are liberal. The display is not a large one, but the quality is unusually good. Mr. Miles, gardener to Lord Carington, Wycombe Abbey, won the premier prize of £10 with a collection consisting of capital and excellently ripened Pines, good Black Hamburg and Foster's Seedling Grapes, superior Read's Scarlet and Cox's Golden Gem Melons, fine Brown Turkey Figs, capital Peaches and Nectarines, and splendid Black Circassian and Elton Cherries. Mr. Bannerman, gardener to Lord Bagot, Rugeley, also stages a good collection, and is awarded the second prize. Mr. Smith, gardener to J. Rylands, Esq., secures the premier position with Black Hamburg Grapes with medium-sized compact bunches weighing about 1½ lb., the berries being large, regular, and well coloured. The remaining prizes in this class are won by Mr. Ogston, gardener to the Countess of Yarborough, Sunninghill, Berks, and Mr. Bannerman in the order named. In the class for white Grapes Mr. Bannerman is placed first with excellent examples of Buckland Sweetwater; bunches full, berries large and regular, and remarkably well finished. Mr. Gray, gardener to J. Warrington, Esq., is second, and Mr. Smith, gardener to W. Blink-

horn, Esq., St. Helens, third, both staging Muscats not quite ripe. Strawberries in pots make a rather imposing display. The foliage is closely staked so as to form a close background, in the front of which the fruit is arranged with great precision, almost every berry being honoured with a wire support. The prizes were awarded to Mr. Hinds, Otterspool, with Sir Charles Napier; Mr. Smith, gardener to J. Rylands, Esq., with President; and Mr. Henshall, gardener to W. Mather, Esq., Whalley Range, with Vicomtesse Héricart de Thury, all staging excellent examples of culture.

In the grounds large, varied, and valuable collections of Conifers and shrubs are exhibited by Messrs. Cauldwell & Sons, Messrs. Standish & Co., and Mr. Richard Smith. Mr. Waterer also exhibits fine standard Hollies, &c., in one of the tents.

On the lawn is a large display of horticultural structures, boilers implements, &c. Messrs. Richardson & Co., Darlington, exhibit large greenhouses, including one glazed with toughened glass; and Messrs. Cranston & Luck, and Holliday also exhibit greenhouses. Messrs. Leach Brothers, 27, Old Millgate, Manchester, have a large display of general garden requisites, including Crowley's mowing machines. Mowing machines are also exhibited by Messrs. Follows & Bate, who have also a large stand of garden appliances. Wagstaffe's, Harlow's, and Grimshaw's boilers are on view; and barometers and wonderfully executed artificial flowers in china are exhibited by Messrs. Davis & Co. of London.

The Exhibition is altogether both large and excellent, it is also well arranged and managed; indeed Mr. Bruce Findlay has endeavoured not only to make the Show successful but enjoyable. Judging was done under number, the class number not even being affixed on the cards, and the prizes were affixed as speedily as the nearly obsolete system permits. At all the great London shows open judging is now adopted, and the prize cards are affixed as the judges' decisions are given. No system can give greater satisfaction than this does, and no other plan is so simple and expeditious.

ROYAL HORTICULTURAL SOCIETY.

• POPULAR FLOWER SHOW, JUNE 10TH.

FOR the floral treat provided in the gardens on Whit-Monday the public who had the privilege of enjoying it at a nominal cost are greatly indebted to the Society's Assistant Secretary, Mr. S. Jennings, F.L.S., for after the idea originated of having a people's flower show on the people's holiday, he obtained private subscriptions sufficient to provide a substantial prize fund and for the purchase of plate, &c., for distribution as prizes to those preferring to have the awards in that form. The efforts of Mr. Barron, too, must be recognised, for had it not been for the assiduous labours of him and his assistants the large marquee could not have been filled so well as it was, nor the Show could not in any adequate manner have been complete and enjoyable. This will be readily understood when it is stated that besides the plants in competition and those sent by some of the principal nurserymen upwards of twenty vanloads were conveyed to the tent from the Society's gardens.

The leading object of the promoters of the display was to give some encouragement to and to afford the best examples of domestic floriculture: hence the only prizes offered were for window plants, &c., grown by the industrial classes in London, and for plants as they ought to be grown for effective home adornment—namely, the best examples of culture of those skilled cultivators, the growers of plants for Covent Garden Market, whose collections constituted the chief feature of the Exhibition.

The principal prize of £10 was won by Mr. John Reeves, Acton, with a collection of plants occupying a space of 300 feet. The plants were admirably grown and effectively arranged. They comprised *Lobelias*, *Euonymuses*, *Geraniums* of the different types, *Fuchsias*, *Hydrangeas*, *Spireas*, *Rhodanthes*, *Liliums*, *Ferns*, *Palms*, and variegated Maples. Messrs. J. & J. Hayes, Edmonton, were awarded the second prize of £7 for plants equally well cultivated but less artistically arranged. For a group of a hundred show Pelargoniums Mr. Brown, Hendon, was awarded the chief prize for splendidly cultivated plants in 5-inch pots, sturdy in habit, luxuriant in foliage, and floriferous, the heads of flowers being a foot to 18 inches in diameter. Mr. Edward Sawyer, Edmonton, had the second prize, also with admirably grown plants. For a hundred zonal Pelargoniums Messrs. Hayes staged excellent examples of *Vesuvius* a foot in diameter and 18 inches high, and received the first prize. The same exhibitors had a similar award for a hundred *Fuchsias*. To grow *Fuchsias* successfully Mr. Cannell says in his pamphlet they ought to be grown like Radishes—quickly. These had evidently received the most generous treatment, for they were extremely luxuriant and laden with fine flowers. Mr. Brown had the second prize for plants equally well grown, but only composed of two varieties, *Lady Heytesbury* and a free and fine dark sort. Mr. Reeves had the premier prize for fifty pots of Musk of the dwarf and luxuriant character for which that grower is famed. Besides the above prizes silver medals were awarded to Mr. Reeves for *Palms*, *Regal Pelargoniums*, and variegated-foliage plants; and to Mr. Sawyer for extremely fine

groups of yellow *Calceolaria Aurea floribunda* in 4-inch pots; awards were also made for various other minor exhibits.

The miscellaneous collections arranged by the nurserymen were exceedingly valuable in furnishing the large tent. Mr. Wills arranged a group as if for the inspection of princes rather than plebeians, and was awarded a gold medal. Silver medals were granted to Messrs. B. S. Williams, Rollissons, Osborns, Laing, and Dick Radclyffe & Co.; and bronze medals to Mr. Boller and Messrs. F. & A. Smith.

The contributions of the amateur artisans were not numerous, but some of them were meritorious, and the wild flowers gathered by school children were arranged with considerable taste. Silver and bronze medals and liberal money prizes were awarded in the several classes of this section of the Show, and Messrs. Sutton and Sons' prize was granted for a miniature collection of vegetables.

Now that the nature of the Exhibition is known amateur exhibitors are certain to be much more numerous another year, for we presume that an enterprise so happily originated and in all respects so laudable will become an established institution. The Show was attended by 15,558 persons on payment of 2d. each.

ROYAL BOTANIC SOCIETY.

JUNE 12TH.

A VERY excellent Exhibition was provided in the large marquee. Ornamental-foliaged plants, Ferns, Ericas, and Orchids were staged in admirable condition. The miscellaneous groups of the nurserymen, especially those of Messrs. Veitch and Bull, were extremely rich and commanded much attention. The Show was well arranged by Mr. Coomber, and was attended by a large number of visitors, including H.S.H. the Duke of Teck, the President of the Society.

ORCHIDS.—The sixteen collections staged on this occasion taken collectively were the finest we have seen in the gardens. The examples were admirably displayed on the elliptical mound and produced a gorgeous effect. In the nurserymen's class for twelve plants Mr. B. S. Williams was placed first with *Odontoglossum vexillarium* and *sceptrum*, *Oncidium sphecelatum* and *crispum*, *Dendrobium Bensoniæ*, *Epidendrum vitellinum majus*, *Aërides Schröderii*, *Cypripedium barbatum superbum*, *Cattleya Mossiæ*, very fine; *Lælia purpurata*, *Calanthe veratrifolia*, and *Vanda tricolor*. Messrs. Jackson & Sons were placed second, and Mr. Henry James, Castle Nursery, Lower Norwood, third. First honours also fell to Mr. B. S. Williams for six plants, amongst which the curious *Nanodes Medusæ* attracted attention. Messrs. Jackson & Sons were awarded the second prize.

In the amateurs' classes remarkably fine collections were staged, and Mr. Denning, gardener to Lord Lonsborough, Coombe Lane, Kingston-on-Thames, was placed first for twelve excellent examples of *Cypripedium spectabile*, *Aërides affine*, *Pescatorea cerina*, a very fine *Cattleya Warnerii*, and a grand *C. Mendellii*, a large and very fine *Odontoglossum Alexandræ*, *Aërides Lobbi*, *Lælia cinnabarina*, *Dendrobium Bensoniæ*, *Vanda Boxalli*, *Odontoglossum vexillarium*, and a very large plant of *Anguloa Clowesi*. Mr. James Douglas, gardener to F. Whitbourn, Esq., was second with an admirable collection, in which was a very fine specimen of *Cattleya Warnerii* carrying sixteen grand blooms.

STOVE AND GREENHOUSE PLANTS were well exhibited. The individual examples were not large, but they were in excellent condition. Mr. Tudgey, gardener to J. Greswold-Williams, Esq., was placed first in the open class for twelve plants with a very fine collection, comprising well bloomed plants of *Allamanda Hendersonii*, *Ixora Williamsii*, *Dracophyllum gracile*, *Dipladenia amabilis*, a large *Anthurium*, *Statiea*, *Aphelexis*, three *Ericas*, and *Azalea Distinction*. Mr. D. Donald, gardener to G. Barclay, Esq., Leyton, was second with a very good collection; and Messrs. Jackson & Son third with smaller plants. For six plants (nurserymen), Messrs. Jackson & Son were placed first; Mr. B. S. Williams, Holloway, second. In the corresponding class for amateurs Mr. Tudgey was placed first; Mr. Hinnell, gardener to F. A. Davis, Esq., Surbiton, second with exceedingly well bloomed but smaller plants, and contained amongst others one of the best plants of *Phenocoma prolifera Barnesii* we have seen for some time. Mr. Child, gardener to Mrs. Torr, Ewell, was placed third. For a group of stove and greenhouse plants arranged for effect to cover a space 12 by 24 feet in three tiers Mr. Wheeler was awarded the first prize, and Mr. Ford the second.

ERICAS were both well and numerous exhibited, and in the amateurs' class for six plants Mr. Hinnell received the first prize for *Ericas tricolor-dumosa*, *ventricosa-Bothwelliana*, *Cavendishii*, *obovata*, *ventricosa magnifica*, and *Jubana rubra*. Mr. Donald was placed second, Mr. Tudgey third, and an extra prize was awarded to Mr. Child. Messrs. Douglas, Weston, Cornhill, and Bones also exhibited in this class. In the class for nurserymen Messrs. Jackson & Son were awarded the first prize.

PELARGONIUMS.—The whole of the back side of the spacious tent was filled with these flowers, and made a most splendid display. In the classes set apart for nurserymen for Show and

Fancy varieties Mr. C. Turner, Slough, was the only exhibitor, and worthily received the first prize in both classes. A very fine collection of seedling *Pelargoniums* also came from Messrs. F. & A. Smith, Dulwich, which was awarded an extra prize. In the amateurs' class for Show varieties Mr. James, gardener to W. F. Watson, Esq., Redlees, Isleworth; Mr. W. Bones, gardener to D. M'Intosh, Esq., Havering Park, Romford; and Mr. James Weir, gardener to Mrs. Hodgson, The Elms, Hampstead, were placed first, second, and third respectively; and in the corresponding class for Fancies Mr. D. Donald, Mr. James, and Mr. Bones were placed in the order of their names. Zonals came from Mr. J. Catlin, gardener to Mrs. Lermite, Finchley; Mr. James Weston, gardener to G. D. Martineau, Esq., Clapham Park; and Mr. Weir, who were awarded first, second, and third prizes in the order of their names. Mr. Catlin's first-prize collection comprised Thomas Adams, Remus, Maud, Col. Wright, Corsair, and a huge plant of Mrs. Turner, all profusely bloomed.

FERNS.—Mr. B. S. Williams won the chief honours in the classes set apart for nurserymen. In the amateurs' class for six large specimens Mr. C. Rann, gardener to J. Warren, Esq., Handcross Park, Sussex, won the first prize with very large plants; Mr. Tudgey winning second honours, and Mr. Donald third. Extra prizes were awarded to Mr. J. Cornhill, gardener to J. S. Virtue, Esq., Oatlands Park, and Mr. J. Child. For a group of Ferns, 12 by 20 feet, Mr. Douglas staged a splendid collection and was deservedly awarded the first prize, Mr. Wheeler the second, and Mr. R. Butler, gardener to H. H. Gibbs, Esq., Regent's Park, third.

Fine-foliage plants were extensively shown, and in the amateurs' class for six large plants Mr. Rann was placed first, Mr. Child second, and Mr. Donald third, all staging good collections; and in the class for nurserymen Mr. Williams was placed first, and Messrs. Hooper & Co. second. Palms were exhibited in the open class by Mr. Rann, who was placed first, Mr. Butler second, Mr. Peed third, and extra prizes were awarded to Messrs. Osborn and Sons and Messrs. Hooper & Co. For twelve *Dracænas* Mr. Williams was placed first and Mr. Butler third. *Gloxinias*, herbaceous and old-fashioned plants, came from Mr. Roberts, gardener to W. Terry, Esq., Peterborough House, Fulham, who obtained the first prize in each class.

The following certificates were awarded—To Mr. B. S. Williams for *Areca flava*, *A. purpurea*, and *Nephrodium extensum*; to Mr. Bull for *Bowenia spectabilis serrulata*, *Adiantum tetraphyllum*, *Doodia aspera multifida*, *Aralia venusta*, *Dieffenbachia Carderi*, *Coffea Liberica*, *Macrozamia Mackenzii*, *Echinocactus cylindraceus*, *Zamia Lindenii*, *Cibotium Chamissoi*, *Kentia rupicola*, *Cœlogyne corymbosa*, *Croton Rex*, *Dracæna vivicans*; to Messrs. Veitch and Sons for *Cypripedium superciliosum*, *Begonia Davisi*, B. Duchess of Teck, B. Symmetry, *Croton Challenger*, C. Hanburyanus, *Macrozamia Mackenzii*, *Sarracenia Cheloni*, *Xeronecactus Moorei*, *Bollea celestis*, *Cattleya tricolor*, C. Mardellii, *Zygopetalum Sedeni*, *Davallia elata*, D. fijiensis; to Messrs. E. G. Henderson & Sons for *Dactylis glomerata longissima aurea* and *Saxifraga valdensis*; to Mr. Holmes, Wellington Nursery, Lichfield, for *Juniperus virginiana spica*; to Messrs. Rollisson & Sons for *Erica obovata exposita*. Extra prizes were awarded to Messrs. Veitch & Sons, Carter & Co., Bull, Williams, Parker, Low & Co., Osborn & Son, Henderson, W. Paul, Marcham, Minier, Nash, & Co., Cannell, and Soder for various exhibits in the miscellaneous classes.

The extensive display of *Rhododendrons* from Mr. Waterer and the immense collection of annuals from Messrs. James Carter and Co. are now on view in the gardens.

NOTES AND GLEANINGS.

PRESTON PROVINCIAL SHOW.—A deputation from the Local Committee, consisting of three members and the Hon. Secretary, had on Tuesday a conference with the Council of the Royal Horticultural Society at South Kensington, at which they reported progress. Arrangements are far advanced towards completion. There is every reason to expect that the Show will be a perfect success.

—As the entries for the NATIONAL ROSE SOCIETY close on Saturday week it is most desirable that everything should be put in order at once. Members are requested to take notice that tickets of admission cannot be given unless their subscriptions are paid. The Committee has made itself responsible for a large sum, and all lovers of the queen of flowers ought to help it, remembering the old Latin saying, "He gives double who gives quickly."

—MESSRS. CUTBUSH & SON afforded at the great Show of the Royal Horticultural Society sufficient evidence of the great value of *ERICA CANDIDISSIMA* as a decorative plant when flowered in a small state. Plants of this *Erica* grown and flowered in 5-inch pots were masses of purity, each plant having from four to eight spikes densely laden with white waxy flowers, and were greatly admired. This free-growing

and floriferous *Erica* is highly worthy of being grown in quantity where chaste white flowers lasting long in beauty are in demand.

— VISITORS to the Royal Horticultural Society's shows during the present year cannot fail having observed the extremely healthy and floriferous half-standard AZALEAS exhibited by Messrs. Rollisson & Sons of Tooting. The secret of the fine flowers and healthy foliage of those plants is the result of their having been planted out in the open air during the summer and potted again early in the autumn. Thus, as was suggested some time ago in these pages, the continental plan of planting out Azaleas is perfectly applicable to the south of England at least, and probably also to other districts. For the carrying-out of this practice it is necessary to prepare beds of soil composed of peat, leaf soil, and sandy loam. The soil should be pressed tolerably firmly around the roots, and the plants be watered and syringed freely. They will then, the position being somewhat sheltered yet exposed to the sun, make sturdy flowering shoots with fine leathery foliage, far surpassing that too often seen when the plants are cultivated wholly in pots. The success of the system of bedding-out Azaleas as practised at Tooting warrants trials being made of the plan in other localities.

— M. CARRIÈRE, of the Jardin des Plantes, reports on BAITS FOR INSECTS, that "beer and water" caught 850 flies and other winged creatures; "pure beer" 631; "crushed pears," "weak wine," and "pure wine" came next in the order given, and pure honey at the bottom of the list, with only seventeen victims. This would seem to disprove the literal truth of the old saying (correct as it is in its moral) that "we may catch more flies with a spoonful of honey than with a gallon of vinegar." No doubt, however, the "loud" odour of the beer, which was in a highly fermented state, had a great deal to do with attracting the insects.

— VISITORS after having inspected the rich collection of fine-foliage plants and the gorgeous Orchids cannot fail to derive pleasure and relief by inspecting the FERNERIES in Messrs. Veitch's nursery at Chelsea. The plants are admirably grown, and many of them are displayed in a natural manner on mounds and rocks. Some striking plants which arrest attention are *Marattia Cooperi*, a dwarf yet noble Fern from New Caledonia; *Nephrolepis davallioides furcans*, a large quick-growing and very elegant Fern of great value for decorative purposes. *Lomaria discolor bipinnatifida*, which Mr. Peter Veitch sent home from Australia, is very fine and is certain to become popular. *Lomaria zamioides* is a noble New Zealand species; especially bold and handsome are the barren fronds. *Thysopteris elegans*, which is said to be only found at St. Helena, is very distinct; it resembles in appearance a large *Davallia*, but produces its inflorescence after the manner of an *Osmunda*. *Dicksonia Berteroana* is a stately plant with fronds of extraordinary texture. *Didymochlæna truncatula* has striking fronds with a metallic lustre; and *Brainea insignis*, a scarce Fern, is distinct and beautiful. Ferns in baskets are most elegant, and the thousands of *Filices* impart variety and elegance to this fine collection.

NOVELTIES IN THE ROYAL GARDENS, KEW.

THE white Water Lily of English lakes and ponds until recently had never been known to paint its blossoms with the rose tints of its tropical relatives. This innovation of colour has been found only in one particular lake in Sweden, doubtless a great surprise and pleasure to its discoverer. The first plants to leave the country of its origin were doubtless those sent to Kew, and now the first flower to open in this country is, we believe, the one we have just seen. It is of beautiful colour, though less deep, no doubt, than it will be when the unusually cloudy weather for this season has given way to a brighter sky. It has been thought that its colour is due to some principle in the water of its native lake, but however this may be, it is probably permanent. There is perhaps nothing in flower of more general interest than this, and fortunately there are many buds to insure a succession of bloom. We are glad to hear that a continental nurseryman has succeeded in raising a stock from seeds. From this water plant we are led to another, quite new and extremely pretty. In the Cape house in a bellglass is *Aponogeton spathaceum* from the Cape. It is quite unlike the familiar *A. distachyon*; the leaves shoot above the water nearly erect, almost like a Rush, and present no distinction between blade and petiole.

The inflorescence is raised to nearly the height of the leaves; it is quite a miniature of the species we have just mentioned, and has a delicate touch of blush pink, but no perfume.

Those who regard with interest the favourites of nearly a generation ago will find much to examine in the collection of Cape Pelargoniums, of which about three dozen species are in flower, as well as several hybrids, some of the former with deep colours and shades never attained by the fancy varieties. Many are curious and all with a feature of some kind, either in perfume, foliage, strange habit, or floral beauty. *Whalenbergia tuberosa* from Juan Fernandez, with perennial rootstock and white flowers, is quite unlike our previous idea of the genus. It has erect stems with narrow leaves, and is in all a pretty plant.

Elisena longipetala is finely in flower, and is extremely rare as well as beautiful. The flowers are pure white, the perianth segments are tortuous, almost winding about, and the margin is wavy. It comes from Lima, and is not unlike *Ismene*, to which it is allied. The beautiful flowers of the new *Iris speculatrix* from Hong Kong are known to few. The sepals are blue-lilac, with white central portion. Its leaves are narrow and stiffly erect.

Many Irids are flowering in the Herbaceous ground, and the most effective of all at the present time is *Xiphion lusitanicum*. Its self golden-yellow flowers are more than 4 inches across. The choice kinds include *I. Douglasii*, as one of the newest; *I. tectorum*; *I. versicolor*, one of the most richly coloured; *I. lævigata*; *I. pallida*, with immense pale blue flowers, and *I. cashmeriana*.

The choicest herbaceous plant in flower, besides possessing a large share of beauty, is *Chrysanthemum Catananche*. It is quite the gem of the genus. The leaves are tufted, cut into silky linear segments, from among which the scapes rise to a height of 6 or 8 inches, bearing golden-rayed flower heads about $1\frac{1}{2}$ inch across. It is one of the most beautiful plants of the Greater Atlas, where it was discovered by Sir Joseph Hooker, Messrs. Maw and Ball, in 1871.

Castilleja indivisa, we believe, is one of the finest plants of the North American flora. It has recently been introduced by Mr. Thompson of Ipswich, and a plant is now in flower on the rockwork. The great attraction of this plant is the large bracts, green below and fiery scarlet above; the flowers, though of the same colour, are small. The genus is a beautiful one, but owing to the majority of the perennial kinds being parasitic not many are amenable to cultivation. *Anemone obtusiloba* is a rare and pretty species, to which more than once at this time of the year we have drawn attention. It is again in bloom, the white flowers clustered together above a leafy involucre. *Tovaria oleracea*, which lately has been blooming near the *Fremonia californica* on the herbaceous ground wall (itself soon to be a sheet of yellow blossoms), is an interesting and beautiful plant. It was not long since introduced to Kew from Temperate Sikkim, and last year flowered for the first time, and was figured in the "Botanical Magazine." It is the most striking species of the genus; the stems sometimes grow to a height of 6 or 8 feet, and bear panicles of white flowers often a foot across. The young flower heads sheathed in the tender leaves form an excellent vegetable.

In the Conservatory is a large specimen of *Chrysanthemum Broussoneti*, rarely seen in this country, but in Paris, where Daisy-like flowers appear to be popular, it is grown with *C. frutescens* and often used outside the restaurants, and in winter stored away in cellars with Myrtles and other plants. The flowers are larger than those of *C. frutescens*, and it also has greater breadth of foliage. The new *Boronia elatior* is finely in flower, and in colour is deeper than any other carmine-coloured species.

In the Orchid collection a single *Dendrobium* is worth special mention. Its flowers are white, sepals and petals tipped with pink, and the labellum creamy with pink markings; the special feature, however, is the delicious and strong perfume of Violets.

FRUIT PROSPECTS.

IN NORTH WILTS.

I AM afraid it is impossible to speak as favourably concerning what I may term the general fruit harvest now as I could have done a month since. The climate here is nearly as good for fruit as the neighbourhood of Bath. The soil I have to do with is excellent. I have examined other gardens than my own and inquired about more, and my own appears to be a fair sample. Hence I will simply give my fruit prospects in

a usual-sized rectory garden situated on a hill with a pleasant slope to south and west, protected by the church and shrubbery from the east wind, and with a hill at back securing me from northern gales. Hence the situation is favourable, being only open to the sunny south and showery west. A month since all appeared promising, now much is changed to the reverse. The first injury that the blossoms received was, I think, in that storm in which the "Eurydice" was lost, Sunday, March 24th. The weather before had been genial and the Pear blossom exquisite, but snow fell on that day, not sufficient to be a cover but enough to remain as a sprinkling. Upon that damp sprinkling came a frost, and partly true was the line in Henry VI.—

"Thus were my blossoms blasted in the bud."

This was true in respect to many of my Pears. However, they bloomed fairly, in some cases abundantly, but I have not a full crop on any. The best, probably a third of what ought to have been, is on the following trees:—Jargonelle, Summer Doyenné, Beurré Giffard, and Madame Treve; a sprinkling on Bergamotte Esperen, a very few on Soldat d'Esperen, Beurré Diel, and Beurré d'Amanlis. Those that have wholly failed are Williams' Bon Chrétien and Seckle, which for three seasons has not had a single blossom; Beurré Hardy ditto; Napoleon few blossoms but no fruit; and Winter Nelis, Louise Bonne of Jersey, and Josephine de Malines also no blossom, but they were only planted last November.

Wall Plums are plentiful, I should say a magnificent crop, but heavily blighted in some gardens. Standards and pyramids very poor. Damsons a light crop and scarcely a single Bullace. This has happened two years in succession, which is curious considering that as a rule Bullaces are certain croppers. I may notice that we have had very heavy storms, much rain, and winds, which have so knocked about the branches of the standard Apples, Damson trees, &c., against each other that the leaves are browned and blackened and now very thin as you look up through the trees.

I come now to Apples. This fruit, we were assured, would be very plentiful, and I thought so too, but it will not be the case I much fear. The trees, all of them, blossomed well. The fruit set apparently well; but whether from wind, or blight, or weakness arising from the frost, a general dropping of the fruit has taken place, and the crop is now scarcely half what I expected. Some trees now have not one Apple on them. The grand exception is, as always, the Hawthornden, which on my soil does not canker to any amount. I have one tree in full bearing forty years old, another above twenty. These never fail, and the fruit while it keeps is not excelled by any. It will not be wise to do away with this Apple, and I regret that it has been written against; where the soil suits it is the best fruit of its season. Lewis's Incomparable has a good crop, and another late cooking Apple, a local variety. I have also some dozens of pyramids, which I had from Worcester, which much please me, and come, I need scarcely remark, always true to name, for Mr. Smith is always to be relied on. There is a small crop still left on each pyramid Apple tree: those bearing best are Lord Suffield, Duchess of Oldenburg, Margaret, Cox's Orange Pippin, Summer Golden Pippin, New Hawthornden, Golden Pippin, Sturmer Pippin, Ecklinville Seedling, Cellini, and Tower of Glammis. Leaf blight, that strangely varying thing, has struck here one and there another, going up the middle of tree perhaps, but leaving the outer branches untouched. I find the pyramid plan much the most interesting in both Apples and Pears; not that I intend to sacrifice fruit to form or to the smallness of the tree, but in a pyramid you have your tree near you to watch it in all changes and it is less injured by winds.

Gooseberries are a short crop with everyone, while on the other hand the supply of Currants appeared to promise to be inexhaustible. But lo! the bunches are half bunches. They, though of course still quite green, resemble what later on would have been regarded as bunches half stripped by the birds.

I had written thus far when my copy of the Journal of June 6th came to hand, and I have read the remarks of "THE HEREFORDSHIRE INCUMBENT" and the Kentish cultivator. The latter's remark as to the "mysterious disappearance of fruit" exactly tallies with my experience. This morning, June 7th, I have just been round my garden, and find still fewer Currants, Gooseberries, Apples, and Pears. My old man's observation during the past fortnight has been, "Wait, sir, till they grow bigger and show themselves;" but they have grown bigger, these few left, and the many have gone, and so don't show themselves. Why or for what cause

the fruit has disappeared I cannot tell, but it is only from the standards and trees in the open, and not from wall trees. This looks like the effect of frost which injured, but its effect was slow. Slow poison is sometimes sure poison. Judging them from present appearances this year will, I greatly fear, be like the last a bad fruit year, the exception probably being Strawberries.—WILTSHIRE RECTOR.

P.S.—It would be both useful and interesting for fruit-growers to notice and record their experiences with their trees, particularly what Pears and Apples not only blossom but mature their fruit in such seasons as the present.—W. R.

THE prospect of a good fruit crop here this season has been sadly dimmed in the last fortnight. The severe weather at the beginning of April cut off some of the Apricot blossom, but enough set afterwards for a crop, but nearly all that has fallen off since. Gooseberries are scarce. Red Currants not over-abundant; Black pretty good. Plums against walls a very good crop. Strawberries promised a wonderful crop at one time, and some of the earliest are set fairly, but I am very much in doubt about some of the late blooms, and think a great many of them will, what is called, "go blind." Pears will be rather scarce; there was not much bloom on the trees, and the Apples will not be the abundant crop at one time anticipated. Several of my trees had the blossom buds cut off by the bad weather early in April, particularly the bush trees. In one place, perhaps, all was cut off, while the next tree was uninjured; I attributed the injury to the snow resting on the branches. Those trees which escaped injury then blossomed wonderfully well, and a good crop was set, but, alas! from some trees all, and upon others nearly all, has dropped off since. What was the reason of it? The answer is not far to seek. It was not frost, the grass was whitened one or two nights, but there was not enough frost to do any injury; neither was it blight, nor too free growth, for I have some trees which have made but little growth and the result is the same. The cause of the failure was the continued rains, the sodden state of the soil, and the absence of sun, so that I agree with "THE HEREFORDSHIRE INCUMBENT" as to the cause. I enclose a copy of the rainfall from the 1st of May to the present time, by which you will see there were only three or four days without rain.

Vegetable crops are looking well, Potatoes never better, having no frost to interfere with them; but everything now wants sun or the consequences will be serious.—AMATEUR, Cirencester.

ROSE PRUNING—GIVING NOTICE.

"WINTER shows," says the proverb, "what summer conceals." I incline to think that summer time shows a good deal also, especially as to the effects of severe pruning. I incline to think that we prune too severely. I observe that Mr. Camm is now advocating letting Tea Roses almost entirely alone. A bush of mine that escaped the knife—Reine du Portugal—under a south wall, certainly is at the present a strong supporter of his theory. Out of fifty nearly that have been pruned this which escaped is far the strongest. Also, I observe in some cottage gardens where I have budded Briars for the occupants, and where the Roses are allowed to grow exactly after their own will and pleasure, now and then I come across some magnificent bushes, three to four times the size of any that my carefully cut-back Briar stocks attain to, and the great strength of the trees is promising blooms in proportion. Certainly for the future I shall only show the knife to *Maréchal Niel*; my plants of it this summer are more like "Die Johns." I pruned hard hoping for blooms a month later than "Glories," and there are not half a dozen bloom buds amongst twenty of them. Only a few weak shoots have been put out, and there is no new wood of any promise. "Rome," said the intelligent American, "is a fine city, but its public buildings are rather out of order." *Maréchal Niel* under glass is a matchless Rose, and against a house where it has its own way may be splendid, but it is not by any means a Rose to be grown under difficulties, and it is certainly most uncertain grown in the open.

I return to my first suggestion—whether the results of severe pruning shown as summer advances do not sometimes contrast unfavourably with plants which have been let to grow freely—whether in many cases considerably less shortening back might not be advisable?

The managers of Rose shows, and very reasonably, for the most part require a week's notice of exhibition, and to know the classes. It is perhaps useful to call attention to this at the

present time. Terrible havoc amongst possibilities was made at the last National show by neglect of this precaution. The tender-hearted but determined Secretaries rejected most resolutely all too-late arrivals. Who knows the victors who may not have been thus extinguished? Some rising Baker or Jowitt perhaps left the Cranston cup that day unchallenged.

I observe the Royal Horticultural name June 15th as the last day of entry, so also the Alexandra Palace. Nothing will avail for the National after June 22nd. Horsham has fixed June 25th for the latest entry, and for the Reigate Show on July 6th; the entry closes, unless I am mistaken, June 23rd.—A. C.

CHOICE GARDEN ORCHIDS.

ÆRIDES, *Lour.*

ETYM.—*Ær*, the air, in allusion to their epiphytal character.

An extensive genus, containing many large showy-flowered species, which even when not in flower are for the most part extremely ornamental. The leaves are distichous (two-ranked), coriaceous or somewhat fleshy in texture, unequally truncate at the ends, but in some few species the leaves are terete. Flowers produced upon long racemes, which are often branched. Sepals and petals spreading; the lateral ones oblique at the base and joined to the prolonged foot of the column, spurred and three-lobed. Column recumbent on the ovary, short and destitute of wings. Anther two-celled. Pollen masses two. Caudicle narrow, membranous. Gland peltate, roundish.

CULT.—The plants comprising this genus may be grown into very handsome specimens providing heat and moisture are duly supplied them. The majority thrive best and retain their lower leaves longest when grown in pots or baskets surrounded with living sphagnum moss. We say living moss, because it then is sure to be sweet and fresh, for the roots of *Ærides* soon decay if allowed to remain in anything sour or decaying. During the summer season they enjoy gentle syringing, but care should be taken that the water is not allowed to accumulate in the sheathing bases of the leaves. The small-growing kinds may be successfully treated upon blocks; but in whatever position they may be grown their leaves must upon no account be allowed to shrivel for want of water. The green and yellow fly should be washed off with tepid water. White scale when it makes its appearance may be cleared away with either soft soap or Abyssinian mixture; and the red thrips, which so much disfigure the members of this family, must be treated with some dry tobacco powder. This should be dusted into the axils of the leaves and allowed to remain there in a dry state for a few days. Some fumigate to destroy these pests: we, however, dislike the system, believing it is a fertile source of the decay of the bottom leaves, which renders these plants very unsightly. All are natives of Asia. Temperature—Summer, 75° to 85° day, 65° to 75° night; winter, 65° to 70° day, 60° to 65° night.

A. affine, Lindl. (Wall. Cat.; Sert. Orchid. t. 15). Syn., *A. trigonum*, Kl.; *A. roseum*, Lodd.; *A. multiflorum*, Hort.—This is an elegant and very ornamental plant. Leaves about a foot long, truncate at the ends, sometimes toothed, light green. Racemes somewhat erect, sometimes branching, many-flowered. Flowers pink and white, more or less spotted with rose. Sepals and petals about equal, rounded at the tips. Lip rhomboid acute, slightly three-lobed, twice as long as the ovary. Spur short and conical. May and June. Sylhet and Nepaul. 1837.

A. affine, Lindl.; var. *superbum*, Hort.—A splendid form of the preceding, having a more robust habit of growth. Raceme dense and much branched. Flowers varying from rosy and white to deep rose, and profusely spotted with rosy purple. May and June. Assam. 1837.

A. japonicum, Rehb. fil. (Bot. Mag. t. 5798).—This species is of somewhat recent introduction, and nowhere has it yet been grown to any size. Leaves 3 inches or more in length, about an inch wide, linear oblong, recurved, keeled below, unequally two-lobed at the apex, dark green on the upper side, paler below. Raceme pendulous, sometimes branched, lax-flowered. Sepals and petals oblong obtuse, waxy white, slightly tinged with green and more or less transversely banded with reddish brown. Lip obovate spatulate, slightly notched and swollen on the under side; lateral lobes oblong, white spotted with violet, with a raised band of the latter colour along the centre. Spur short, funnel-shaped. Flowers delicately fragrant. May and June. Southern Japan.

A. Lindleyanum, Wight. (Ic. Ind. Or. O., t. 1677). Syn.,

Saccolabium speciosum, Wight? *Ærides crispum* Lindleyanum, Hort.—This is a plant of robust and noble habit, resembling somewhat a gigantic form of *A. crispum*. Leaves coriaceous, oblique and obtuse, bilobed at the apex, some 6 inches long, very deep green on the upper side, slightly paler below. Racemes much-branched and many-flowered. Sepals and petals nearly equal, the lateral ones being slightly the largest and obovate; colour rosy lilac margined with white. Lip three-lobed, ovate acute; lateral lobes much smaller than the middle; the latter large and spreading, swollen above and toothed at the margins, and ornamented at the base with a plaited fleshy lobe, deep rich rose narrowly edged with white. Spur short, incurved. May and June. Madras.

A. mitratum, Rehb. fil. (Bot. Mag. t. 5728).—A low-growing species, having long, slender, cylindrical leaves, which are upwards of 2 feet long, channelled above, tapering upwards to a fine point, and intense deep green in colour. Racemes erect, 6 to 10 inches high, dense, many-flowered. Flowers upwards of half an inch in diameter. Sepals and petals sub-equal, oblong, obtuse, and pure white. Lip larger than the sepals, not quite flat, having a small projection on each side at the base. Spur short and thick, bent backwards, dilated at the base. Spring and summer. Moulmein.

A. quinquevulnerum, Lindl. (Sert. Orch., t. 30).—The leaves of this splendid species are ligulate, obliquely notched at the apex, with a little point in the middle, tightly clasping the stem at the base, about 12 inches in length and light shining green in colour. Racemes pendulous, many-flowered, longer than the leaves. Flowers large, dense, and slightly fragrant. Sepals and petals rounded, nearly equal, white dotted with crimson, and stained with purple at the tips. Lip cucullate, three-lobed; lateral lobes erect; middle oblong, incurved, denticulate and stained with crimson-purple. Spur conical, incurved, green. Summer and early autumn. Philippine Islands. 1838.

A. quinquevulnerum, Lindl.; var. *Farmeri*, Hort. Syn., *A. quinquevulnerum* var. *album*, Hort.—This very rare variety is stiffer in habit than the species, and the leaves are of a much deeper green, but they have the same habit of tightly clasping the stem at the base. Raceme pendulous, longer than the leaves, dense. Flowers fragrant and pure white. July and August. Philippine Islands. 1850.

A. Reichenbachianum, Lindl. (Xenia Orch., t. 104).—In general appearance this plant resembles *A. quinquevulnerum*. Racemes pendulous, many-flowered, longer than the leaves. Flowers white, with large amethystine blotches at apex of sepals and petals, dotted with the same colour towards the base; upper sepal cuneate, roundly ovate, acute; lateral ones bluntly triangular, their edges revolute. Petals narrower, falcate, slightly toothed. Lip three-lobed; lateral ones axe-shaped, erect, serrulate on the front edges and rich golden yellow; middle lobe ligulate, serrulate above, bearing two teeth at the apex. Spur conical, incurved, green. July and August. Borneo.

A. roseum, Lindl. (Bot. Mag., t. 4049). Syn., *A. affine*, Hook. (non Wall.) in Bot. Mag.—A robust-growing plant, which appears to dislike moisture to collect about its roots, therefore it should be kept drier than the other species. Leaves coriaceous, channelled, recurved, with a blunt two-lobed apex. Racemes dense, pendulous, many-flowered, and 12 to 15 inches in length. Sepals acute, narrow at the base. Petals longer and not so wide as the sepals, pale rose. Lip flat, rhomboid, entire, and tapering to a point, bright rose, spotted with a darker shade of the same colour. Spur short, incurved. Ovary triangular, as long as the lip. June and July. Assam. 1840.

A. roseum, Lindl.; var. *superbum*, Hort.—A much superior plant than the normal form. It is freer-growing and more robust in habit. The racemes are longer and very dense. The flowers are larger in all their parts, and deep rich rose, profusely spotted. June and July. Assam. 1843.

A. suavisimum, Lindl. (Pxt. Fl. Gard., ii., t. 66).—A handsome, distinct, free-growing species. Leaves somewhat flaccid, about 10 inches long, light green, freckled with brownish dots. Raceme longer than the leaves, many-flowered, dense. Flowers deliciously fragrant. Sepals and petals ovate obtuse, spreading, white tipped with lilac. Lip horned, turned upwards and pressed close to the column, three-lobed; lateral lobes oblong, slightly toothed; middle lobe dwarf, linear, bifid, pale lemon colour, point of spur rosy red. June and July. Malacca. 1848.

A. suavisimum, Lindl.; var. *aurantiacum*, Hort.—A superb

variety, differing mostly in the colour of the middle lobe of the labellum, which is rich orange yellow, rendering it very distinct. The entire flower is much larger than in the species. June and July. Borneo. 1866.

A. suavisimum, Lindl.; var. *flavidum*, Lindl.—Although distinct from the other forms, this, it must be acknowledged, is inferior in beauty. Sepals and petals white tipped with pale pink. Lip horned. Lateral lobes rounded, entire, very pale yellow; middle lobe bifid and same colour. July and August. Malacca. 1848.

A. Thibautianum, Rchb. fil. (fig. 68). (Bot. Mag., t. 5681). Syn., *Saccolabium Huttoni*, Hook. fil.; *Aërides Huttoni*, Hort. Veitch.—In general appearance this plant resembles *A. quinquevulnerum*, and the leaves have the same habit of tightly clasping the stem. Leaves 6 to 8 inches long, unequally two-lobed at the apex, and deep green. Raceme pendulous, slender, many-flowered, upwards of a foot long. Flowers large and fragrant, and soft deep amethyst in colour. Sepals broadly oblong. Petals cuneate, obovate, spreading. Lip three-lobed. Lateral lobes falcate; middle lobe strap-shaped and acute.



FIG. 68.—*AERIDES THIBAUTIANUM*, after "Bot. Mag.," t. 5681.

Spur conical, obtuse. August and September. Java and the Polynesian Islands. 1866.

A. vandarum, Rchb. fil. (Bot. Mag., t. 4982). Syn., *A. cylindricum*, Hook. (B. M., t. 4983).—This plant, it would appear, is erroneously referred to *A. cylindricum* in the fig. above quoted. Leaves round, channelled above, 4 to 6 inches long, dark green. Racemes short, one to two-flowered. Flowers large, white. Sepals obovate and strap-shaped with waved edges. Petals similar in shape, reflexed, and, like the sepals, waved at the edges. Lip three-lobed. Lateral sepals broad, ovate, acute; middle retuse and crested. Spur short, conical. Spring and summer. East Indies. 1856.

A. virens, Lindl. (Bot. Reg., 1844, t. 41).—Leaves broad, oblique, and terminate in an obtuse point, with a depression

in the centre, bright shining green in colour. Raceme drooping, many-flowered. Flowers deliciously fragrant. Sepals and petals obovate, obtuse, delicate French white tipped with a deep rosy purple blotch. Lip large. Lateral lobes slightly toothed at the points and speckled with crimson; middle lobe bearing an inflated sanguine serrated tongue. Spur ascending, tapering to a fine point. June and July. Java. 1841.

A. virens, Lindl., var. *album*, Hort.—This variety is undistinguishable in its growth from the normal form. Racemes pendulous, dense. Sepals and petals white, faintly tipped with lilac. Lip white, sparingly dotted with pale lilac. June and July. Java.

A. virens, Lindl., var. *quinquevulnerum*, Hook.—This variety is more robust in growth than the species. Racemes dense,

pendulous, branched, 12 to 18 inches long. Flowers very fragrant. Sepals and petals spatulate, pure white, with a heavy rosy purple spot on the tip of each; lateral sepals obtuse, double the size of the petals. Lip pressed close to the column. Lateral lobes white, streaked and dotted inside with purple, which is faintly visible on the outer surface; middle lobe rich rosy purple. Spur tipped with green. April and May. Java. 1865.

DISAPPEARANCE OF FRUIT.

AT the beginning of last month Apple, Pear, Plum, and Cherry trees were completely covered with blossom, which appeared to set well and progress favourably for some time, but I assure you that a thorough transformation has taken place, but through what cause I cannot say. The weather has certainly been very cold and wet, but now on most of the Pear, Plum, and Apple trees it would be difficult to find a single fruit, and the Cherries, Gooseberries, and Currants are all similarly affected.—A. W. BIRD, *Florist, Sheffield*.

BATH AND WEST OF ENGLAND SOCIETY.

OXFORD, JUNE 10TH.

AT the exhibitions of a Society the aim of which is the encouragement of agriculture, arts, manufactures, and commerce, it is reasonable to suppose that horticulture should occupy an important position. Such a position is undoubtedly accorded it, and in a manner worthy of the art which it illustrates—most worthy so far as it goes, so much so that we cannot but regret not seeing every branch of horticulture represented under such able supervision as is here brought to bear upon the work by the Hon. and Rev. J. T. Boscawen.

The Show is a peculiar one, consisting entirely of plants and cut flowers, not brought into competition for prizes, but so arranged as to produce tasteful effects. To do this in the best way the most suitable plants are chosen, so that those belonging to a single exhibitor are not grouped together, but are dispersed among others, and present to the eye in the most advantageous manner. They are exhibited in a tent 135 feet long by 50 wide, thoroughly ventilated, and admirably suited for the purpose. The interior arrangements are simple and good. Connected with the end by which the public gain admittance is a long central stage arranged in three tiers with a high central elevation. It runs along towards the upper end of the tent not in straight but in curved lines, thus presenting none of the too common aspect of offensive formality present in most stages. The stage is covered, not with green baize, but with soft felting of a light brown tint in harmony with the colour of the roof and ends of the tent, and forming a capital foil to the various shades of green in the foliage and to the bright colours of the flowers, which appear all the brighter from such a background. The plants are arranged in exquisite taste. All along the high central tier are lofty Palms, Bamboos, and Cordylines, the crown and glory of the stage being a magnificent example of *Sabal umbraculifera* from G. May, Esq., standing aloft upon the highest place and spreading its huge fronds gracefully outwards and downwards. At one end is a lofty *Theophrasta imperialis*, at the other an *Alsophila australis* from Col. Loyd Lindsay, with *Lantanas*, a very fine *Cycas revoluta*, and other fine plants. On the lower stage plants equally fine but not so lofty impart beauty to each other and grace to the whole. Some of them are so fine as to merit special attention. A group consisting of *Maranta Veitchii*, a *Clerodendron Balfourianum* from G. May, Esq. (gardener, Mr. Parham); a lovely *Dipladenia amabilis* from the Earl of Jersey, whose gardener, Mr. H. Hain, had many other good plants here; an *Adiantum gracillimum* grown by Mr. Parham, and a *Clerodendron fallax* from Mr. Hain with two grand spikes of its showy scarlet flowers, were very beautiful, and the charmed eye wandered on to the lovely tints of *Bougainvillea glabra* hard by a grand *Stephanotis*, a charming pair of plants, both from the garden of G. May, Esq. *Statice profusa* from the Earl of Jersey's garden at Middleton Park is a huge plant nearly 2 yards in diameter, thick set with flower clusters and in fine health, as too was an equally large and very fine *Lantana Le Grenadier*, with a profusion of deep orange-coloured blossom. Of other really fine and finished specimens I may take Mr. Parham's *Rhynchospermum jasmimoides*, a *Cocos Weddelliana* from Col. Loyd Lindsay, with a very large *Calanthe zebrina* from the same gentleman's garden; a *Caladium Belleyneii*, a *Vinca alba* 8 to 4 feet in diameter in good bloom, an *Erica Cavendishiana*, and a *Pandanus humilis*. Numerous smaller plants are mingled in tasteful groups, bright colour being imparted by zonal *Geraniums* and Cape *Pelargoniums*, softer and more lovely tints being found in the numerous *Orchids* contributed by Sir William Marriott, many of the pendant spikes nestling charmingly among clusters of Maiden-hair Ferns.

Along one side of the tent a row of large standard Bays is found

alternating with irregular triangular clumps of blue and white Pansies, and onwards towards the upper end a pleasant break is introduced in the form of a collection of hardy Ferns in pots. Very beautiful in form are the following—*Athyrium Filix-femina* var. *todeoides*, having light elegant frondage of a pale green hue; *Scolopendrium vulgare* var. *ramo-eristatum*, *Polystichum angulare* var. *angustifolium*, *Athyrium Filix-femina* var. *plumosum* very elegant, *Osmunda regalis cristata*, *Polystichum angulare plumosum*, massive in effect and of much beauty, the fronds being quite plume-like.

Of cut flowers there is a collection of rare Orchids, another of Cacti, also of Ranunculi, Roses, and an interesting collection of British wild flowers by Rev. W. Tuckwell. The Exhibition was not, however, complete when these notes were taken, more Orchids being promised and more cut Roses.

A bold group of plants at the upper end of the tent demands notice, consisting of an immense Screw Pine, planted upon a raised mound having some fine specimens of Ferns around its base, and near them an interesting exhibition from J. Dorrien Smith, Esq., Tresco Abbey, Isles of Scilly, consisting of flower spikes cut from plants growing in the open air of *Dracena indivisa*, which there is from 12 to 16 feet in height, the flower spike being thick and bushy; *Cordylina erythrorachis*, of more dwarf and spreading growth with the flower spikes long and slender; also flower spikes of a seedling raised there which is considered a cross between the other two plants, partaking of the tall habit of *D. indivisa* and foliage of *C. erythrorachis*. It is a very interesting variety, more beautiful than either of its parents. A flower spike of *Chamerops excelsa* was also sent.

A charming collection of cut Irises from the Oxford Botanical Gardens forms an attractive addition to the Show. The novel forms and varied colours of the flowers evidently attract and please, very little being known generally of many of them. In colour they range through many shades of pink, yellow, and blue, white and black too being not altogether unrepresented; one named Queen of Gypsies having under petals of a rich velvety black, and *Alba purpurea* having much white upon its petals. A pretty group of French Pansies in pots must also be noticed; and a brace of Daniell's Duke of Edinburgh Cucumbers shown by Mr. Hookham of Summertown are so large and symmetrical, both being apparently upwards of 30 inches long, as to merit a word of praise.

In other parts of the Exhibition yard implement makers and seedsmen are in great force. Messrs. Sutton & Sons of Reading have a large stand, remarkable not only for its tasteful arrangement for a collection of fifty sorts of old Potatoes, the tubers being in wonderfully good preservation. Messrs. Carter also exhibit seeds and roots, and Messrs. E. Webb & Sons of Wordsley, Stourbridge, have an attractive stand. Mr. J. Matthews of Weston-super-Mare has a stand of pottery, comprising among other things a useful form of Orchid pan, shallow and perforated with holes. Of glass structures there are several examples; one by Mr. Parham of Bath and Oxford Street, London, being worthy of especial note for the patent light hollow iron rafters on which the sides of the glass rest and serve to carry off all drip. Mr. Perry of Banbury has a span-roofed house presenting an excellent combination of strength, lightness, and ample ventilation with convenient staging. Tools and garden implements of all sorts in improved and novel forms are also represented.

Our leading nurserymen cannot be aware of the magnitude of the Show or of its comprehensive nature, or they would see that it would be worth while to follow the lead of the seedsmen. The Exhibition opened on Monday and closes on Saturday.

SOUTH ESSEX HORTICULTURAL SOCIETY.

ESSEX can boast of several flourishing horticultural societies which hold really fine shows. That held by the above Society in the grounds of J. G. Barclay, Esq., at Knotts Green, Leyton, is generally considered one of the best, and the one held on June 6th was no exception to the rule. The extensive and well-kept gardens of Mr. Barclay also proved a source of attraction to many visitors. This gentleman's able gardener (Mr. Donald) not only exhibited largely and successfully, but at the same time did so without any apparent detracting from the appearance of a very fine conservatory. This structure is divided into compartments for stove and greenhouse plants, and there are also two excellent examples of grotto work, which were delightfully cool with the water constantly trickling over the rocks, &c. Mr. Donald deserves great credit for the general appearance of the conservatory, and also for one of the grottos that he constructed.

In nearly all the classes in the schedule there was strong competition, and in several instances extra prizes were awarded by the Judges (Messrs. Ward, J. Fraser, Barley, and Sweet), so good and even were the exhibits. In the class for eight stove or greenhouse plants Mr. Donald, gardener to J. G. Barclay, Esq., was first with large but rather overtrained specimens of *Erica Cassoniana* and *ferruginea major*, *Aphelaxis macrantha purpurea*, *Franciscea confertifolia*, *Clerodendron Balfourianum*, *Hedera tulipifera*, *Statice profusa*, and *Dracophyllum gracile*. Mr. Bones,

gardener to D. McIntosh, Esq., Havering Park, Romford, was a good second. In the corresponding class for four varieties Mr. Bradley, gardener to O. E. Cope, Esq., and Mr. Lane, gardener to General Fytche, Pyrgo Park, Romford, were placed equal first. Mr. Bradley staged a good *Anthurium Scherzerianum*.

Orchids were staged in considerable numbers; none were large, but the first prizes were awarded to very creditably grown plants. For six Mr. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, and Mr. Walton, gardener to A. Borwick, Esq., were placed equal first. For three plants Mr. Lane was first, and Mr. Monk, gardener to — Fowler, Esq., second. Mr. Donald was first with four *Ericas*, and Mr. Bones second. There was excellent competition in the classes for Tree, Exotic, and British Ferns. Mr. Donald was first for six Exotic, Mr. Douglas for four ditto, and Mr. Walton for six British Ferns. Mr. Donald staged a good *Davallia Mooreana*. Mr. Douglas was first for six *Lycopodiums* and also for six fine-foliage plants, staging excellent specimens in 15-inch pots of *Croton Weismannii*, *Cocos Weddelliana*, *Cycas revoluta*, *Pandanus Veitchii*, *Dasyllirion gracile*, and *Kentia canterburyana*. Mr. Donald was a good second in this class. Mr. Lane was first for single specimen foliage plant with a very attractive and well-grown plant of *Lomatia heterophylla*. This and other varieties of *Lomatia* ought to be more grown, being very attractive either in a young state as table plants or as shown by Mr. Lane. In the corresponding class for plants in flower Mr. Donald was first and Mr. Douglas second. Both staged very fine specimens of *Clerodendron Balfourianum*, the Judges apparently giving the preference to the most precisely trained plant.

Pelargoniums were well shown, many specimens being particularly fine. Mr. Bones was first for six large-flowering, staging fine examples of *Chieftain*, *Maid of Honour*, *Emperor*, *Ariel*, *Rob Roy*, and *Example*. Mr. Monk, gardener to F. Head, Esq., was first in the corresponding class for four plants. Mr. Donald was first for six *fancies* with really fine specimens of *Ellen Beck*, *Mrs. A. Wigan*, *Roi des Fantaisies*, *Lucy*, *Marmion*, and *Mrs. Mendell*. A good feature in this group was the comparatively small number of sticks used for training. Mr. Bones was second. There were also classes for *Fuchsias*, *Coleuses*, *Gloxinias*, table plants, &c. The first-prize *Calceolarias* staged by Mr. Foster, gardener to R. Johnson, Esq., were very fine.

There was good competition in the various classes for cut flowers, but the *Roses* were scarcely up to the mark. Dinner-table decorations, vases, bouquets, &c., were scarcely so good as usual. Miss Spicer won the silver cup for a group of three vases. The framers of the schedule erred in deciding the minimum height of the vases to be 18 inches, as most of the exhibitors used very tall vases, the only exception being the first-prize group. It is a mistake to employ tall plants or vases on the dining table.

Fruit was shown in small quantities, but the quality to a certain extent compensated for the scarcity. Mr. Bones was first and Mr. Douglas second in the class for black *Grapes*, both staging good examples of *Black Hamburg*. Mr. Douglas was first in the class for white *Grapes* with well-grown *Buckland Sweetwater*; and Mr. Lane second with *Foster's Seedling*, bunch and berry good, but the colour wanting. Mr. Bones was first for a *Melon* and also for *Peaches*. There was a good competition in the class for *Strawberries*. Mr. Douglas was first with a remarkably fine dish of *James Veitch*. This is a fine exhibition variety, and the flavour is also very good. Mr. Bones was second with *Premier*. Mr. Douglas was first for a collection of vegetables (eight varieties) all good, the *Asparagus* particularly so. Mr. Monk was first for six varieties; and Mr. Douglas for a brace of *Cucumbers*, variety *Tender-and-True*.

WORK FOR THE WEEK.

KITCHEN GARDEN.

PLentifully water *Celery*, plant out for succession, and prick out that from the early April sowing for the latest crops. Continue to provide for successional supplies of *Turnips*, *Lettuces*, *Radishes*, and *Spinach* by occasional sowings, as may be required. Sowings for use in late summer and autumn of early blue and green *Marrow Peas* may be made, also *Early Longpod Beans*. Cut off the tops of *Broad Beans* at the uppermost pods; it will cause the pods to fill more quickly. Complete as soon as possible the thinning of all root crops, and if *Carrots* are wanted for drawing in a young state a sowing may now be made. *Early Horn* and *Nantes* are best for this purpose. Take advantage of favourable weather to plant out *Broccoli*, *Savoy*, and other description of winter *Greens* and *Cauliflowers* as ground becomes vacant. Prick out those for later plantings; they keep and transplant better than from the seed bed. *Early Purple Cape* and *Grange's Broccoli* sow for use in autumn. Remove the seed stems from *Seakale*, cutting to the lowest leaf, and thin the crowns of that planted this spring to one, two, or three crowns to each plant, according to their strength, removing the weakest, so that the crowns left may become large and well developed for forcing purposes. Vegetable *Marrows* and *Ridge Cucumbers* should be

earthed-up, the shoots pegged out, and when the weather becomes settled the glasses removed.

HARDY FRUIT GARDEN.

The stopping and nailing or tying-in of wall trees should be proceeded with as rapidly as possible, laying in a sufficiency of young shoots to fill up or extend the trees. It is well not to pinch-in too closely, or, instead of forming fruit buds, the trees will start into second growth. The cold weather lately experienced has been unfavourable to the growth of fruit trees generally; as a consequence aphids is becoming troublesome, especially with *Peach*, *Nectarine*, and *Plum* trees. Any shoots that can be dipped in tobacco water it is well to so treat, or the trees may be syringed with soapy water, 2 ozs. of soft soap to the gallon. If tobacco water be employed allow it to remain a day, and then thoroughly wash the trees with a syringe or engine. *Gooseberries* and *Currants* should be cut back to two or three leaves of their base; but *Black Currants* should not be stopped, but any unfruitful growths may be thinned. There is every prospect of stone fruits not stoning satisfactorily, therefore we advise moderate thinning. *Pears* have set very badly, and *Apples* are not likely to be anything like the crop the blossom promised. *Plums* and *Cherries* are swelling very irregularly, so there is much doubt of the greater portion falling off ere they attain any size. *Pear* and *Apple* grafts should have had the clay removed and ligatures loosened; if not, it must no longer be delayed. Short sticks thrust into the ground and the scions secured thereto will make them safe, but they will soon have such hold of the stock as to be proof against wind.

Strawberries are abundant alike in fruit and foliage, and are throwing out runners strongly. Especially is this the case with those planted in July last year from which runners are usually had for growing in pots for forcing. It is important that the runners are those of fruitful plants, that the first runner on each wire only be layered, and that it be done so soon as it has a pair of leaves and shows roots at its base. Between every other row of plants place 3-inch pots filled with rather strong turfy loam and a sprinkling of buffalo-horn manure well firmed into the pots without crocking; let the pots stand in single file, half plunged in the soil to keep them in position and more uniformly moist. Make a small hollow in the centre of each pot to receive the runner, cut off the wire just beyond it, and secure with galvanised wire pegs about 1½ inch long. Some employ stones for keeping the runner in position; we find these very indifferent, especially when nets are employed for protecting the fruit from birds. *Vicomtesse Hélicart de Thury*, *La Grosse Sucrée*, *President*, *Sir Joseph Paxton*, *James Veitch*, and *Sir Charles Napier* are admirable for forcing purposes, and are placed in the order of their ripening; *British Queen* or *Dr. Hogg* and *Cockscomb* for late forcing. *Black Prince* and *Keens' Seedling* are also good for forcing, but the fruit is not equal in appearance to the preceding. For outdoor culture *Black Prince* and *Keens' Seedling* are not superseded as first earlies; we also grow *Vicomtesse Hélicart de Thury*, *President*, *Lucas*, *Sir Joseph Paxton*, *James Veitch*, *British Queen*, *Dr. Hogg*, and *Frogmore Late Pine*. In light soils *Vicomtesse Hélicart de Thury*, *Sir Harry*, *President*, *Lucas*, *Dr. Hogg*, and *Filbert Pine* we have found to succeed better than many others.

Ground for *Strawberries* should be trenched and liberally manured, but that manured and trenched last winter will be in good order for planting with *Strawberries* after early *Peas* or *Potatoes* without further preparation than forking over to level the ground. Two feet between the rows and 18 inches in the rows for the moderate growers, and 2 feet 6 inches between the rows and 2 feet in the rows for the more robust, are suitable distances. The plants when detached from the parent may be put in a shady position for a few days, or planted out at once if the weather is moist. They will produce a good crop of fine fruit next season.

FRUIT HOUSES.

Vines.—Keep the house cool and airy, and as dry as is consistent with the health of the *Vine*, and the temperature not less than 60° at night. The *Vine* being a gross feeder when growing should be abundantly supplied with water in dry weather, particularly the surface of outside borders, which in bright cloudless days become dry where no mulching is given, causing the roots to strike deep into the border and drainage in search of moisture. Avoid this by timely waterings and mulching of the outside as well as the inside borders. The nights are yet too cold to allow of fire heat being dispensed with, but the fires should be stopped early on fine mornings, air being given early at top, first in moderate quantity, gradually increasing it as the day advances; and when the maximum is reached air may be given in front, but avoid cold draughts or sudden depressions of temperature, as these are likely to cause rust. Bring to a close as soon as possible the thinning of late *Grapes*, or if not yet sufficiently advanced for that purpose keep up a temperature of 75° to 70° at night, advancing to 85° or 90° by day from sun heat, closing at 80°. In cases of this kind the crop must be forwarded by affording a genial warmth through the summer so as to have the crop well ripened before autumn, as there is little hope of the *Grapes* keeping well and plump without their being thoroughly ripened. Newly planted *Vines* will be growing freely and should have

copious supplies of water, and the borders mulched to keep the roots near the surface. Syringe copiously on fine afternoons and close early, allowing the laterals to extend considerably with a view to the formation of roots.

Peaches and Nectarines.—The fruit will now or shortly be all gathered from the earliest forced trees. Admit all the air possible day and night. If the roof-lights are moveable take them off altogether after the trees have had full ventilation for a fortnight, and keep the foliage free from insects by forcible syringings, and if need be an insecticide. Soft soap 3 ozs. to the gallon of water will check red spider, and if scale be present syringe the trees with paraffin, a wineglassful to four gallons of water, mixing it well and keeping well mixed during application. The borders also must be well watered in dry weather. Cut away the wood having borne fruit to the shoot at the base intended to fruit in its stead next year, except such shoot is required for extension. If there be a superfluity of shoots they are much better removed now than allowed to remain until the winter pruning. Keep laterals and any gross shoots closely stopped. In the succession houses former directions must still be followed, syringing the trees twice a day to keep down red spider, attending to the borders with water, and mulching so as to maintain a good moisture in the soil and to promote surface roots, tying-in and regulating the shoots as required. Remove any leaves that shade or overhang the fruit when it commences ripening, so that they may be equally coloured and the quality enhanced.

Cherry House.—Keeping the foliage dry whilst the fruit is ripening and afterwards to preserve it in good condition favours the spread of red spider. As soon, therefore, as the fruit is all gathered remove the shading material and syringe the trees twice a day until the pest is eradicated, and if there be any aphids annihilate it by repeated fumigations or syringing with tobacco or quassia water. Open the house fully, and remove the moveable lights altogether. Trees in pots may be plunged in ashes outdoors in a sunny situation, attending to them and those in the house well with water as required.

Orchard House.—Cherry trees hardly ever escape being infested with black aphid. As this fastens itself on the under side of the leaves water from the syringe or engine has very little effect upon it, and it withstands more tobacco smoke than will destroy the brown or Peach aphid. Those and the blue aphid upon Plums are best overcome by quassia water or tobacco water, which is rendered more effectual by gently rubbing the infested leaves with the fingers, they being well and repeatedly wetted with the tobacco water. This is best done in the evening, and the following morning well wash the trees with the syringe or garden engine. Fumigations are, however, more readily given, and when persisted in are certain to effect a clearance. It is necessary to have the foliage dry, and not to fill the house too full of smoke, as an overdose is certain to scorch more or less of the tender foliage. The trees should be well syringed the following morning. Syringing trees twice a day must not be neglected, or red spider will assuredly soon obtain a footing, from which it is difficult to free the trees. Attend to pinching the shoots; the side shoots upon the main branches to two or three leaves, and the extremities to six, the leaders of pyramids being stopped to 12 inches. It will now be seen which of the fruit is likely to stone freely, and thinning should be done accordingly. During fine weather the ventilators should be allowed to remain open constantly, excepting when the nights are unusually cold and during the prevalence of high winds, when they should be partially or wholly closed. Attend well to the trees with water, and any that are weak feed with liquid manure.

FLOWER GARDEN.

The recent rains have been of service in settling the soil about the roots of bedding plants, which are now making good growth. Tender plants employed for summer decoration should be got out if not already done, they having been well hardened off, and if the weather be bright at the time of planting a slight shade, as that of evergreen branches, will insure the earlier establishment of the plants. The grouping of subtropical plants requires some taste and skill, making choice of such as associate well together, having due regard to the ultimate proportions of the different plants as to height, &c. Detached or isolated specimens should be bold in aspect and distinct in outline from the groups. Palms answer well, as they are dissimilar to a majority of plants employed for this description of work, also Dracænas. Except in sheltered situations subtropical gardening should not be attempted, as the leaves of many are torn to shreds in exposed situations, and nothing is then so miserable in appearance. The ground for a majority of subtropical plants requires thorough enrichment, which should be given before planting, with a view to as much leaf-development as practicable.

Plant out without delay Stocks, Asters, and other kinds of half-hardy annuals in ground that has been well manured and forked over frequently. Those previously planted should be well watered in dry weather and mulched with short manure. Hardy annuals sown in masses should be well thinned if thick, or they will have a weedy appearance, neither plants nor flowers arriving at proper development. Herbaceous plants require attention in

staking and tying, but better leave them alone than bundling them by running a piece of matting round, as it prevents the shoots from receiving light and air, the stems become long and weak, and many of the leaves are destroyed. If only one stake is employed the branches should be looped up separately, so that each may receive its due amount of light and air to insure full development, besides having a much better appearance. Before staking, the weakest shoots should be removed with a view to the concentration of the vigour in those retained, thereby inducing fine heads of bloom. Hoe the ground frequently to destroy weeds, and rake so as to give a neat appearance.

Roses are fast swelling their flower buds, and when they appear should be liberally watered with liquid manure, mulching the ground afterwards with manure. Violas, Verbenas, Calceolarias, and other plants delighting in moisture or liable to suffer from drought should also have the soil well mulched. Dahlias and Hollyhocks will require stakes. If fine flowers are expected the plants must be well watered. Hollyhocks if wanted for exhibition must have but one stem retained to each plant. Prick out seedling Wallflowers, Antirrhinums, and other biennial or perennial plants. Rhododendrons, Azaleas, and other American plants should have the decayed flowers picked off, which will not only improve the appearance of the shrubs but will increase their vigour.

PLANT HOUSES.

Orchids.—Masdevallias do well in a cold north house or pit for the next two or three months, as when these plants are kept too warm they become drawn and weakly, rarely producing any flowers; they require plenty of water at the roots, the leaves being frequently sponged to keep down thrips. *Odontoglossums* should have air early in the morning, so as to keep a cool temperature and sweet atmosphere. They require copious supplies of water at the roots and frequent syringings overhead, which will keep the bulbs large and clean. Yellow thrips are often troublesome. Sponging is the best riddance, but they often get so far down into the young growth that nothing short of blowing tobacco smoke into them will make them shift. If fumigation be resorted to it must be frequently and carefully done. *Oncidium* starting into growth may be repotted; most kinds require more heat than *Odontoglossums*. *Dendrobiums* must have very liberal treatment, plenty of moisture above and below, so as to secure strong growth, and that well matured will give correspondingly fine flowers. *Anguloas* will now require large supplies of water. Plants of *Calanthe vestita* that have filled the pots with roots may be shifted into larger pots, using well decayed manure and leaf soil; or if not shifted give weak liquid manure at every alternate watering, applying the syringe freely every morning and evening. They do not require more than slight shade. *Epidendrums* require plenty of air and light. *Cypripediums* require syringing and watering freely. They must have the atmosphere well charged with moisture, and liquid manure sprinkled about the house once or twice a week will invigorate the plants. Remove *Miltonias* when the growth is completed to a cool house, and only afford moisture to prevent the bulbs shrivelling. Syringe all East Indian plants frequently, especially on fine days. Any that have grown vigorously and filled the pots with roots should have a shift into larger pots. If the roots are attached to the side of the pot it is better to break the pot, and allow the crocks adhering to the roots to remain, than to injure them by striving to remove the plant from the pot. Those not potted will require a top-dressing of fresh sphagnum. Admit air freely in the Cattleya house, and shade only to prevent burning. If wanted to prolong the bloom of *Cattleyas* and *Lælias* they should be removed to a dry house. Any plants which have their growth approaching maturity should have the moisture about them lessened, and be more exposed to light and air so as to bring them gradually to a state of rest.

TRADE CATALOGUES RECEIVED.

Ewing & Co., The Royal Norfolk Nurseries, Newmarket Road, Eaton, near Norwich.—*List of Clematises.*

H. Bolton, Norwich Nurseries, Wained Road, Nelson, New Zealand.—*General Catalogue of Garden and Farm Seeds, Plants, Trees, &c.*

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editors," or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense. Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

RHODODENDRON (H. L.).—Rhododendrons are too numerous to be named from seeing a single flower.

PARAFFIN AND ROSE TREES (W. S.).—Diluted (half a wineglassful to a gallon of water) the paraffin would not injure the Roses nor the bulbs.

CAMELLIAS FROM GHENT (Clericus).—Imported plants do not, as a rule, thrive so well as plants grown in English nurseries. Instead of repotting your plants remove a little of the surface soil and replace with a mixture of peat, loam, and leaf soil. See that the drainage is efficient, and water copiously until the buds are set, allowing the plants to remain under the shade of the Vines until the Grapes commence colouring. The Camellias may then be placed in a shaded position out of doors, but not under the drip of trees, placing them under glass again before the occurrence of heavy autumn rains.

VENTILATING VINERY (Amateur).—The top lights of your vinery ought to be opened long before 8 A.M. in sunny weather. Your safe plan is not to close them entirely, and immediately the thermometer rises above 60° in the morning to admit more air. Excluding the fresh early morning air from Vines is a fertile source of red spider, and consequently of unsatisfactory crops of Grapes.

SWEET WILLIAM CULTURE (M. P.).—These beautiful border flowers should be grown as biennials. Sow the seed at once in an open border, sow it thinly, and cover it slightly with fine soil. When the seedlings are large enough to be handled transplant them 6 inches apart and you will have sturdy plants by October or November, when they should be planted in their blooming positions. The advice you have had to sow the seed in August is not sound—that is, if you require strong plants and fine heads of flowers next June.

ZONAL PELARGONIUMS FOR WINTER FLOWERING (X. Z.).—Insert the cuttings now in 3-inch pots; when they have rooted shift them into larger pots as required, growing the plants in the open air, pinching out the shoots until August and the flower buds until October; then remove a portion of the surface soil and replace with rich compost, placing the plants in a light house having a minimum temperature of 45°. Nearly all the varieties flower freely in winter when thus managed, but *Vesuvius* is probably one of the best scarlets for your purpose, and *Madame Vaucher* one of the best whites.

PROPAGATION OF GLOXINIAS FROM LEAVES (Constant Reader).—When you cut off the leaves retain half an inch of leafstalk. Insert each leaf singly and upright in a mixture of equal parts of peat and silver sand in 3-inch pots, placing nearly an inch of the bottom of the leaf in the soil. Bottom heat is not essential. Keep the pots in any shaded position in the same house as the parent plants or in a vinery. Give water regularly, and by autumn you will have a plump little bulb in each pot. If the leaves are very large it is unlikely that they will remain erect after they are inserted in the cutting pots; that, however, is immaterial provided they keep fresh.

PANSIES AND ANTIRRHINUMS DYING IN WINTER (K. J. R.).—Both these fine perennials are quite hardy, but both, like many other of our best border flowers, succumb to the combined effects of cold and excessive moisture. Make your soil light, rich, and very gritty; raise it 9 inches or a foot above the common level, and your subsequent losses will be so few as to be immaterial. Far better is it to do this than to resort to pot culture, involving as it does so much extra care and labour. Instead of growing the plants in pots we advise cuttings being struck in August, the plants being wintered in small pots placed in cold frames and then planted out in the spring.

GRAPE VINES FOR TEXAS (J. H. W.).—All the varieties of the Grape Vine cultivated in this country will doubtless flourish in Texas, as it lies well within the limits of latitude wherein Grapes grow to perfection in the open air. Of early sorts, white or golden, take Dutch Sweetwater, Buckland Sweetwater, Ferdinand de Lesseps, Golden Champaign, Muscat St. Laurent, Royal Muscadine; and of black sorts Black Hamburgh, Frankenthal, Esplan, and Red Chasselas. You ask for early sorts and we have given them. Do not forget, however, that those which we term late would prove comparatively early in Texas; and we strongly advise you to add to white and golden sorts Duke of Buccleuch, Dr. Hogg, Golden Queen, Muscat of Alexandria, Mrs. Pearson, Trebbiano; and to black sorts Alicante, Gros Guillaume, Madresfield Court, Mrs. Pince's Muscat, and Lady Downe's Seedling.

CUCUMBERS AND MELONS DISEASED (M. D.).—The roots, as you state, being perfectly healthy we are unable to account for the diseased shoots and foliage: we are inclined, however, to attribute the injury to some defect in the ventilation or the general management of the atmosphere of the house or frame. On those points you do not afford any data enabling us to form an opinion.

WORKING MEN BOTANISTS.—“A Lancashire Working Man Botanist” writes to us to suggest to other working men who are interested in the study of botany the desirableness of corresponding with each other for the purpose of exchanging specimens of plants from different parts of the country. His address is Mr. W. Henshaw, 64, King Street, Farnworth, Manchester.

VINE LEAVES (A Five-years Subscriber).—They are not diseased, but very luxuriant. Give rather less water, and ventilate more freely.

GRAPES SPOTTED (Muscat).—They are being destroyed by “the spot,” an ulcer caused by defective root-action. If fermenting dung were heaped over the surface of the outside border it might check the spreading of the disease. Pick off the spotted berries, and ventilate freely yet carefully.

PANSIES (J. M. Oughton).—They are fine flowers, but we cannot name florists' varieties.

COMFREY CULTURE.—Your correspondent who is wanting information regarding this useful plant is quite right in covering it with manure. Only recently we had some hundreds of crowns manured, but the manure is never raked off again. It is a strong-growing plant giving heavy crops and requires cutting three or four times each season; horses, cattle, and pigs, all of them eat it freely.

GRAPES DISEASED (A Subscriber).—They are badly attacked by the spot, and well they may be, for two berries out of every three ought to have been thinned out long since. Cut out every spotted berry. There is not sufficient sap supplied to sustain the growth.

PLANTING FLOWER BORDER (R. E.).—We cannot advise, nor can any one without seeing the place.

EMIGRATION (N. D.).—We never venture to advise. Apply to the Commissioners for Emigration.

BUDDLEA GLOBOSA (A Mayo Subscriber).—The honey from this flowering shrub is not injurious either to bees or bee-masters.

GERANIUMS (A. H.).—Florists' varieties are too numerous to identify from trusses of flowers only.

WOODLICE (T. W.).—Put slices of potato in garden pots in your Cucumber house, and cover the potato slices with a little moss. The woodlice will resort to them.

NAMES OF FRUITS (James Beadle).—1, London Pippin; 2, Graham or Deux Ans. (H. C., Framfield).—It is the Tulip Apple.

NAMES OF PLANTS (James Beadle).—The plant is *Asphodelus albus* (W. Ryan).—No. 3 is the Red Valerian. The other two specimens are merely leaves.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

CULTIVATION OF THE SWEDISH TURNIP.

(Continued.)

In cultivating the land under a fallow preparation it will depend very much upon the nature of the soil as to the system to be adopted. In many of the northern counties and parts of Scotland the system of drilling on the stretch is common, but this can only be successfully carried out upon the light and finely working soils, such as gravel, sand, or chalk. In the coarser soils the surface will often prove rubbly and unkind, in which case when two furrows are thrown together to form the ridge or stretch it makes a poor seed bed, and in dry weather the seed will not vegetate with regularity. If ridge culture is decided on, the land should be laid into ridges from 27 to 30 inches apart during winter. In the spring the stretches should be split with a double mould-board plough and allowed to lie until the weeds begin to appear, then lay-out the dung and spread into the furrow between the stretches, and if guano is used sow the manure over the stretches, and in either case reverse the ridges with the double mould plough. The manure will then be buried in the centre of the ridge directly under the seed, which should be drilled with 2 or 3 cwt. of superphosphate per acre on the centre of the stretches. This drilling is generally done with a drill for the purpose of seeding two ridges at once with a hollow roller attached. We have, however, when we did not require to apply manure with the seed, drilled it with little hand drills, such as are used by gardeners, and costing 10s. 6d. each. With these a man will seed a good lot of land in a day; in fact we have found women sometimes will do this kind of work. We will now refer to the drilling Swedes on the flat, and many parties prefer it, objecting to the stretches where the roots are to be fed off by sheep, as the animals are apt to be cast on their backs between the stretches and be found dead. Drilling on the flat or wide ridges is particularly adapted to a very dry climate and unkindly soils, like much to be found in the eastern and southern counties, because the seed will vegetate more regularly with a less kindly tilth and with a less amount of moisture, and thus the plants may be preserved until the nights get longer and the autumn rains commence.

The selecting a sort of Swede adapted to the soil and climate and the purposes for which the roots will be required are matters of much importance. Skirving's Liverpool Swede is a very quick-growing variety, and therefore well adapted for early sowing and for pulling at the earliest period for cattle-feeding in the stalls, as we have found the Swede almost the only sort that becomes ripe and fit for feeding bullocks before Christmas. They will, with the application of a liberal dressing of guano and superphosphate, sown side by side with other sorts, be ready first. We have, however, various sorts to choose from for the main crop and general use on the home farm. Nearly all our seedsmen throughout the kingdom advertise their Imperial Hardy Purple-top Swede. Setting the Sutton's Champion Swede next in quickness of growth and best adapted to succeed the Skirving's Liverpool variety, we may then say that the different growths by various seedsmen vary but little as to their nutritious properties. In order to test the advantage of the seed offered by the different seedsmen it should be matter of experiment, because the sorts and qualities are so nearly allied, that the soil and climate and the various purposes for which the roots are required must decide

the question when we come to consider the various matters in connection with their growth and requirements of the grower. There is a white Swede which, being a hybrid sort, cannot always be depended on to produce roots of kindly well-grown shape; yet we have seen sometimes very handsome well-grown bulbs of this sort, and when they can be depended on they are about the best for late sowing and spring feeding. All the Imperial Purple-top varieties offered by the best houses for the sale of seeds may be depended on to furnish a sort to be carried on for use at the latest period, if the cultivation and time of sowing have been arranged with the view of retaining the roots in full feeding value at the latest period in the spring. Still this is not so important a point except on certain soils as it used to be, for mangold has stepped in and says, "Hear me. I have more nutriment than the Swedish turnip, and I have more weight per acre to give you," but the advocates of the Swedish turnip reply, "Yes, but we must go to the expense of pulling, carting, and storing the roots of mangold, whereas the Swedish turnip may be allowed to remain on the land when it is desirable that our breeding flocks of sheep should be enabled to feed them upon the land in open-field feeding at the least expense." We have next to consider how this (to the flock masters) desirable object is best and most economically to be obtained. Now although the nature of the soil has much to do with this matter, yet we are brought to the question of considering the best time for sowing. We will put it this way:—If Skirving's Swedes are required for early feeding, the 20th of May is not too early sowing, particularly in the northern and midland counties. If the crop is required for general purposes, the first week in June is the best seed time for the hardy Purple-top varieties. If, however, the roots are intended for late-spring feeding either the white Swede or the Hardy Purple-top may be sown from the 25th of June to the 1st of July, with the full assurance that they will be after ordinary winter weather found to possess full feeding value in the spring months. Much, however, will depend upon the soil, for a farmer with whom we were well acquainted did not sow his Swedes until he could obtain new seed of his own growth of the same season, and he doggedly pursued this plan for forty years with the greatest success; for after having often gone over this farm for a long period we can safely say there was no farm in the district which gave a better crop than the one alluded to, although it often happened that the seed was not sown until the first and second week of July. It was a sharp gravel soil, in a fine salubrious climate, and well farmed, which not only insured the quickest growth, but the growth at the latest period, and often extended into the winter months.

As drilling on the flat is the most general mode of cultivation we shall therefore consider that if the weather is very dry it may be bad policy to plough the land just before drilling, but to scarify instead, which will destroy the weeds without losing the moisture so essential towards vegetating the seed. The manure to be applied must to some extent depend upon the state of the land previously, because if the ground is full of manure from former cultivation 3 cwt. of superphosphate per acre with a few ashes, or fine chalk, will prove an ample dressing. On the other hand if the land is poor 2 cwt. of Peruvian guano may be applied per acre, but not with the drill, as we have known it kill the seed, and therefore prefer to sow it broadcast after the plants are strong, and horse-hoe immediately afterwards. If it is sown broadcast when the seed is drilled it encourages the weeds without benefiting the young plants in the same proportion. In deciding upon the distance at which the seed should be drilled, after many years of experiments upon this point we prefer 20 inches between the rows, and leaving the plants at 15 or 18 inches apart in the lines, according to the nature of the soil, the only exception being on land more than usually subject to annual weeds. It is best then to drill the seed at 24 to 27 inches between the lines in order to facilitate horse-hoeing, and at this distance the plants may be left closer in the lines so as to obtain not less than 120 plants to the rod. We like to drill about 2½ to 3 lbs. of seed per acre, as this not only allows for destruction by the enemies such as wireworm, grub, and fly, but the plants grow faster in their infancy when thickly seeded. With respect to hoeing we have often, when the plant has been thick and regular, been induced to horse-hoe across the drills and to set the hoe at 12 inches wide, which will leave the plants in bunches at rather more than that distance apart. The labour of hand-hoeing is thus diminished and the plants may be singled by hand by women. It is, however, most essential at the time of hand-hoeing and singling the plants always to leave the strongest plants, and this point is more to be regarded than any little difference in the distance between the plants. We shall omit any remarks at present as to cultivating for Swedes as a second crop after trifolium, vetches, &c., because this matter will be treated of under the cultivation for common turnips in a future article.

WORK ON THE HOME FARM.

Horse Labour.—This still consists of preparing the land or drilling the seed, also with the necessary work of harrowing, rolling, &c., for the different root crops. In some instances it has

been very difficult to prepare the land in due season for mangold and Swedish turnips owing to the continuous rains in the past month of May. We have, however, had four or five dry days, which have enabled parties to get in the mangold to prepare for the drilling of Swedes. The late showery weather which prevailed during the month of May has not been without its advantages if it has had drawbacks, for wherever it is intended to sow Swedes or turnips after green crops, such as rye, trifolium, vetches, &c., the land is now soft and kind for roots at one ploughing. This is favourable when compared with some very dry seasons, when it is difficult to plough and work the land to a fine tilth so necessary for the success of root culture. We have land now which we could not drill with mangold until the present week on account of the succession of showery weather; but we do not despair of obtaining a good average crop by the use of a liberal dressing of superphosphate and guano, say 3 cwt. of the former and 2 cwt. of the latter; for although, if we were to judge by the day of the month, it is considered late, yet mangolds are not like Swedes—they rejoice in warm weather, whereas Swedes will flourish and grow when the temperature is lower if moist. We can remember having on former occasions not having sown mangolds until after the 1st of July upon land where we had previously taken a crop of clover, and we have grown as much as 26 tons per acre when the season has been favourable and moist enough to vegetate the seed, and in the case of late seeding we always soak the seed for forty-eight hours in order to insure a quicker start. Cabbages now should be planted for the autumn and winter use, and three sorts are required to complete the succession. The Oxheart comes in first, or otherwise the Imperial variety, then the large Champion cattle cabbage, but for the latest feeding we like the Drumhead Savoy, for they will not only keep long without splitting, but they are the most nutritious for the ewes at lambing time, or for milch cows. When we compare the advantage of planting cabbages after a green fodder crop with the risks of seeding for a crop of turnips, we not only insure a crop of more value but of more certainty, because in the planting of cabbages if set with the spade it matters not if the plants are old and long and strong in the stem. They are sure to grow let the weather be ever so dry, and they grow away at once—very different from turnips, which often require a month or five weeks before they can be finished hoeing and the crop assured.

Land Labour has lately consisted of hoeing peas, beans, and barley, for on some soils unless the barley is drilled at 10 or 12 inches apart the charlock, the poppy, and other weeds will predominate and seriously injure the produce. The drilling at this width does not by any means diminish the crop, but insures a better malting sample, and the best management we have noticed on even the thin chalk soils has been to drill this crop at the widest distances. This is a very important time for all farms whereon sheep are kept, particularly when we consider how difficult it has been lately to get the wool dry enough to venture at shearing. We know various cases where the animals had been washed in order for shearing, but it was delayed in consequence of the succession of wet weather.

This is the important period for shepherds, as it is the time on the hill farms for weaning the lambs, and it should be noticed that it is better to remove the ewes from the lambs than to take the lambs away from the ewes direct to a strange pasture or another field. The labour both for men and women should now be forwarded in order that all hands may be ready for the coming hay season, for although machinery both in cutting and making the hay is an excellent substitute, yet there is always some hand labour required. The odd horse or horses will be required to bring home green fodder for horses, cattle, and pigs. The young cattle, both heifers and steers, whilst feeding on the pastures at daytime will do well at this time of the year, but they should be housed at night time, and an old barn is famous quarters for them, to be fed with a little clover or border grass. They will not only do well with little or no cake, but they will leave a large quantity of valuable manure if bedded with earth and straw.

THIS SPRING'S POULTRY REARING.

Has this been a good or bad season for poultry rearing? For my part I never took more trouble with them or met with more disappointment. Out of nearly 300 eggs set about 140 hatched, and of the 140 chicks only about 90 are living, and many more are likely to go. Most of them have died from gapes, but now there are many dying from some other cause, mostly those about six weeks or a month old. They droop their wings, or in some cases the feathers stand out, the chick looking like a round ball; some remain in this state for days, others go off in twenty-four hours.

The bad hatching I do not think so much of, as they were mostly very early sittings, and at one time several hens deserted their nests from some cause I was unable to account for, but those hatched ought to have lived, as far as I can see. They had everything to make them comfortable. The coops, which are dry and roomy, are placed in a row at the top of a grass field facing south; the grass kept short cut for some yards in front of the coops, the floors of which are kept clean and covered with a mixture of road

grit, ashes, and lime—very dry; also sprinkled often with carbolic powder. The only water given is strongly impregnated with camphor, as recommended in the Journal; the food (crushed oats) boiled and afterwards worked-up with barleymeal, to which is added before boiling a handful of millet seed. On cold days I sometimes give boiled rice with plenty of pepper, and now and then sulphur in the meal. Lately I have given wheat once a day.

My breed is mostly Indian Game, but the mongrels are taken quite as often as the others. I have also given some camphor pills, but it did not seem to cure the gapes.

I should be glad to have the defects in my management pointed out, both for my own sake and for the benefit of any other poultry fancier who may be in the same trouble as myself.—R. TEAGUE, *Sanders, Dartmouth.*

THE PARIS POULTRY SHOW.

THIS great Show of cattle and poultry, of which we have by anticipation talked, written, and surmised so much, was on Sunday morning last opened to the public. Considering the vastness of the Exhibition grounds it seems unfortunate that room should not have been found within them for this Show too, so that all who flock to the world's wonder for this year should have an opportunity of seeing the advances made in the inmates of the farmyard without paying an additional franc. However, putting aside this disadvantage, the ground laid out for the Show is admirably chosen; it is the Esplanade des Invalides—viz., the great space intersected by broad roads and well covered between with trees, which stretch from the Seine towards the great gilt dome. It is converted into a vast show yard. The central avenue is tastefully filled up with green lawns, the marvellous growth of this year, which, like those in the Exhibition grounds, are perfectly astonishing, interspersed with bright flower beds and gravel walks. Stretching far on both sides are the cattle sheds, admirable structures for their purpose, with broad central walk, and two rows of stalls on each side open towards the sides, with excellent roofs reaching well beyond the stalls. They are of wood with ornamental eaves, and remind us of Swiss railway stations.

But we must hasten to the poultry. They are all amongst green avenues in large pens, with one upper and one under tier. The long rows of these pens stand back to back with a passage between, accessible from locked doors at each end. They open into the passage but have no external door, so that it is impossible for the Judges to handle the birds. Above they are covered with marquee-like awnings, but are open to the sides. This arrangement struck us as admirable for this time of year. The awnings are by no means unnecessary, for our fitful English weather seems to extend across the Channel. Half hours of broiling sun are succeeded by premonitory whirlwinds of dust, quickly followed by drenching showers and hurricanes of wind; still these pass off as quickly as they come, and all Paris seems intent on enjoying Whitsuntide. We have seen the bright city in the *fiête* time during the palm days of the empire, but we never saw the crowds of Sunday and Monday surpassed or equalled. But to return to the showyard. The poultry jury entered upon their duties on Friday morning at the same time as the juries for cattle and sheep. Much time was taken up with formalities, an address from the President of the whole section, and other preliminaries, which to the English mind were a little *de trop*. The poultry jury was divided into four sections. The first comprised Messieurs Lagerotte (Deputy), Broquette, Edoux, and Mannechet, who took the Crêves, Houdans, La Flèche, and other French breeds. The second, Messieurs Malazieux (Deputy), O. E. Cresswell, M. Leno, Gindre-Malkerbe, Léville, and Winrion (Inspector of the Jardin d'Acclimatation); they took the Cochins, Brahmas, Dorkings, Spanish, Breda, Hamburgh, Game, Malays, Dutch (White-crested Polish), Paduan (Coloured Polish), and other varieties. The third section, Messieurs Geoffroy St. Hilaire (Director of the Jardin d'Acclimatation), Hauet, Bénion, and Boucheron, who took the Pigeons. The fourth, of Messieurs Dronne, Gayot, Pietrement, and Pono, who judged the Turkeys, Geese, Ducks, Guinea Fowls, and Rabbits.

"The organisation of this country is so great that all is confusion," said Mr. Cunliffe-Owen, the indefatigable Secretary of the British section, to us *en route* to the Show on Friday; and there is great truth in the observation, for so many are the forms to be observed that, though the judging began on Friday morning, no awards were put up or published by Sunday night. We will, therefore, postpone all criticism of them until we have seen them officially printed. The judging was done with open catalogues, and there is no secret that the two English Judges much disliked this method, and were consequently sorely dissatisfied with the result; their patience, too, was greatly tried by the way in which their French colleagues went and came, and in which the decisions made after long discussion were subsequently upset and altered by gentlemen who had not been present at the real judging. Mr. Cresswell, acting as interpreter, made frequent and, as far as courtesy would allow, energetic protests against this course. To take a general survey of the Show, the French classes are enor-

mous and their quality mediocre. A Crêve cock of the Messrs. Fowler and some Houdan hens from Mrs. Vallance struck us as far distancing the native birds. In Cochins, again, English birds seemed ahead in every class. In Hamburghs, Game, and Game Bantams (shown together), and Dutch (White-crested), can hardly be beaten. In Paduan (Coloured Polish), however, our neighbours are before us, and show some charming pens of Buff birds and one or two of White.

The prize of honour has been awarded to Madame Lemoine as winner of the greatest number of prizes, and no wonder, for her entries are over one hundred in number. Gold medals for fine collections were in addition decreed to M. Breachet of Paris (who came second with 88 points), M. Marois (77 points), Messrs. J. K. and R. R. Fowler (57 points), Mr. Beldon (55 points), and Mr. Martin (44 points).

H.R.H. the Prince of Wales honoured the Show with his presence on Saturday afternoon while the judging was going on, and the English Judges were severally presented to him. In addition to the two English winners of gold medals Mr. Darby sent a splendid though less numerous collection of birds. The whole of the British feathered stock are under the special care of Mr. Fowler of Aylesbury, who seems never absent from his post. Thousands flocked to the Show through Sunday and Monday. We hope next week to give further detail concerning it.—C.

THE BATH AND WEST OF ENGLAND SOCIETY'S SHOW.

THE Spanish classes were well filled, but the majority of the birds were not in exhibition form. Cocks.—We did not like the winner; he had a crooked neck, which entirely spoilt his carriage. The second was a coarse-faced bird with a large lobe; we should have placed him in the first position, and Pen 3 (Ball), a smart young bird, second. Hens.—First had a nice-shaped lobe, and was well shown; second, the White, was of very poor quality. We liked Mr. Jones's, Pen 16, much better; it was as large in face, the shape of the lobe was good, and the quality of white much better. *Dorkings*.—First a grand bird in good condition, and sound in feet and comb; second an older bird. Hens.—First large but out of condition, and not so good in shape as the second. Silver-Grey cocks a good class; the first and second were fine birds, but the winner was very striped in the hackle, and we think for this reason their positions should have been transposed. Hens.—Here we thought the second larger and better in shape than the first. White or Blue a very moderate lot. The winner was ugly in comb and shape; second a Cuckoo, small but well marked. Pen 66 we thought contained the best White in the class, but so dirty we considered the Judge quite right in passing him. A hen in the next class belonging to the same owner doubtless lost place in the prize list for the same cause. *Cochins* (Buff cocks).—The winner was a nice bird, and deserved his position; second was small, and we did not like his variations in colour. Pen 78 a good bird, sound in colour, but comb over. Partridge cocks moderate. Hen.—First large; second well pencilled, but deficient in leg feathers. White cock.—First a grand bird, very pure in colour, and in fine condition. Pen 131 (highly commended) was very nice but small. Hens were inferior to the cocks. *Brahmas* (Dark cocks) a very poor lot. First small; second was very creamy in saddle and white in tail. Hens better. First well pencilled, but deficient in leg feather; second also nicely pencilled. *Light cocks*.—First a well-shaped bird, beautiful in colour, with an ugly comb; second a good bird. Hens, with the exception of the winners, poor. *Game*.—The winning Black Red cock was much admired, being beautiful in colour, very stylish, and in superb condition. *Hamburghs*.—In the Spangled classes the Golden cocks and hens only numbered five against seventeen Silver, and in the Pencilled the Golden predominated to the same extent. *Polish*.—A White-crested Black hen first deserves special notice. *French* were well represented, the Crêves in quality we thought the best. Special prizes were given for *Langshans* by H. G. Herbert Morrell, Esq., which produced the large entry of eighteen cocks. We presume the Langshan exhibitors would call it treason if we described them as bad Black Cochins, but we are convinced had they been exhibited as Cochins we have no judge who would have disqualified them for being entered in a wrong class, and *vice versa*. Had acknowledged Black Cochins been entered, as on other occasions, as Langshans the Judge could not have discerned the difference. The chicken classes were largely supported. A well-grown Light Brahma pullet, veryulture, obtained the cup. Many old birds, we regret to say, were shown as chickens, and we were sorry the Judge did not mark his disapproval by disqualification. *Bantams*.—The Sebrights were a splendid lot, every pen being deservedly noticed. The Blacks were also excellent. Two pens of White only competed. They were both good. Game Bantams were not equal to the former classes.

Pigeons.—Many of the classes were very badly filled. In Black Carrier cocks the first prize was withheld, the best bird being put out of competition through a deformed toe. Hens only two entries second prize withheld, one of the competitors showing

white feathers in the vent. Pouters and Trumpeters also contained but two entries. In the latter class the prizes were withheld on account of condition. The Dragoon classes were small, but all the specimens good. In the Jacobin class the winner was broken in the hood. We preferred the second pen. Tumblers were a nice class. In Owls the winner was very much out of condition.

POULTRY.—SPANISH—Cock—1 and 2, Jones. *Hen*—1, J. Woods. 2, R. Newbitt. **DORINGS—Colour**—1, T. C. Burnell. 2, H. R. Peel. 3, Mrs. R. Wood. 4, Mrs. Radcliffe. **Sliver—Cock**—1, O. E. Cresswell. 2, T. C. Burnell. *Hen*—1, O. E. Cresswell. 2, T. C. Burnell. **White or Blue—Cock**—1, R. A. Boissier. 2, J. L. Playfoot. *Hen*—1, O. E. Cresswell. 2, J. L. Playfoot. **COCHINS—Cinnamon and Buff—Cock**—1, H. Tomlinson. 2, W. Wright. *Hen*—1, Capt. T. S. Robin. 2, H. Tomlinson. **Brown and Partridge feathered—Cock**—1, R. J. Wood. 2, H. Tomlinson. *Hen*—1, R. P. Percival. 2, E. J. Wood. **White—Cock**—1, G. B. C. Breeze. 2, A. E. W. Darby. *Hen*—1, R. P. Percival. 2, A. E. W. Darby. **BRAMMAS—Dark—Cock**—1, J. Earle. 2, H. Lingwood. *Hen*—1, Miss E. Shuter. 2, Rev. J. D. Peake. **Light—Cock**—1, and 2, A. Dean. *Hen*—1 and 2, G. H. Wood. **GAME—Black-breasted Red—Cock**—1 and Champion Prize, S. Matthew. 2, W. H. Staggs. *Hen*—1, W. J. Pope. 2, W. H. Staggs. **Brown-breasted Red—Cock**—1, J. Osborn. 2, S. Matthew. *Hen*—1, S. Matthew. 2, J. Osborn. **Duckling and other Greys, B. ues, Blacks, and Whites—Cock**—1, S. Matthew. 2, W. C. Phillips. *Hen*—1, J. Colgrove. 2, S. Matthew. **HAMBURGERS—Golden-spangled—Cock**—1, S. R. Harris. 2, H. Beldon. *Hen*—1, H. Beldon. 2, J. Jackson. **Sliver-spangled—Cock**—1, H. Beldon. 2, Miss E. Browne. *Hen*—1, H. Beldon. 2, Miss E. Browne. **Golden-pencilled—Cock**—1, E. W. Snell. 2, W. K. Tickner. *Hen*—1, W. K. Tickner. 2, J. T. K. Castell. **Sliver-pencilled—Cock**—1, H. Beldon. 2, E. W. Snell. *Hen*—1, W. Snell. 2, H. Beldon. **Black—Cock**—1, H. Beldon. 2, J. M. Kilvert. *Hen*—1 and 2, J. M. Kilvert. **POLISH—Cock**—1, J. Partington. 2, T. Norwood. *Hen*—1, T. Norwood. 2, T. Lecher. **HOUDANS—Cock**—1, W. Howard, jun. 2, E. W. Thomas. *Hen*—1 and 2, S. W. Thomas. **CREVINGES—Cock**—1 and 2, E. Ward. *Hen*—1, R. Pount. 2, P. Le Sueur. **MALAYS—Cock**—1, W. Isaac. 2, T. B. Lowe. *Hen*—1, T. B. Lowe. 2, G. Burnell. **MINORCAS—Cock**—1, H. Elston. 2, F. J. Bucher. *Hen*—1, J. Harwood. 2, F. J. Bucher. **LEGHORNS—Cock**—1, J. Heastie. 2, E. Ayre. *Hen*—1, Bradbury Bros. 2, J. C. Fraser. **ANY OTHER VARIETY—Cock**—1, H. R. Peel. 2, J. Wiggins. 3, J. C. Fraser. *Hen*—1, J. Wiggins. 2, H. R. Peel. 3, Messrs. King. **LANGSHANS—Cock**—1, J. Thomson. 2, Miss H. A. Sivewright. *Hen*—1, A. C. Croad. 2, Miss H. A. Sivewright. **ANY VARIETY—Cock**—1, J. Colgrove. 2, H. Tomlinson. *Hen*—1 and 2, Cup. G. B. C. Breeze. 2, H. Tomlinson. **HANTAMS—Gold and Silver—Cock**—1, Rev. W. Serjeantson. 2, Rev. F. Tearle. *Hen*—1, T. F. Phelps. 2, J. Lewis. **White—Cock**—1 and 2, Rev. F. Tearle. *Game*—1, T. W. Anns. 2, E. C. Phillips. **Any colour or variety—Cock**—1, T. Phelps. 2, Rev. J. Buckmaster. **DUCKS—White Aylesbury—Cock**—1, E. W. Snell. 2, S. R. Harris. *Hen*—1, E. W. Snell. 2, F. P. Bulley. **Black East Indian—Cock**—1 and 2, J. W. Kelleway. *Any other variety—Cock—1, Rev. F. Serjeantson. 2, Rev. G. F. E. Shaw. **TURKEYS—Cock**—1, W. Wykes. 2, Rev. N. J. Ridley. *Hen*—1, W. Wykes. 2, J. & W. Birch. **GEESSE—Cock**—1, J. & W. Birch. 2, C. E. Printer. **PIFFONS—CARRIERS—Black—Cock**—2, P. H. Jones. *Hen*—1, R. Fulton. **Any other colour—Cock**—1 and 2, R. Fulton. *Hen*—1 and 2, R. Fulton. **POUTERS—Cock**—1 and 2, R. Fulton. **RUNTS—Cock**—1 and 2, J. S. Price. **DRAGONS—Blue or Silver—Cock**—1, W. Bishop. 2, R. Woods. *Any other colour—Cock—1 and 2, R. Woods. **PANTAILS—Cock**—1 and 2, Rev. W. Serjeantson. *BARBS—Cock—1 and 2, R. Fulton. **ARCHANGELS—Cock**—1, F. P. Bulley. 2, J. Pounsett. **JACOBINS—Cock**—1 and 2, R. Fulton. **TURBANS—Cock**—1, R. Woods. 2, R. Fulton. **TUMBLERS—Cock**—1 and 2, H. Yardley. **OWLS—Cock**—1 and 2, R. Fulton. **NUNS—Cock**—1, J. Allen. 2, C. Parsons. **MAGPIES—Cock**—1 and 2, F. P. Bulley. **ANTWERPS—Cock**—1, S. Wade. 2, T. Fellows. **ANY OTHER VARIETY—Cock**—1 and 2, F. P. Bulley. **FLYING CLASS FOR HOMING BIRDS—Cock**—1, W. Tomlinson. 2, T. F. Ledger. 3, J. Hill.***

JUDGES.—Poultry: Mr. E. Hewitt. **Pigeons:** Mr. W. F. Esquilan

BEES TAPPING FLOWERS.

IN the *Journal of Horticulture* of the 6th of June Mr. Pettigrew raises the question whether hive bees do or do not tap the flowers of beans. From my own observation I can testify that they do perforate the blossoms for the sake of obtaining the honey. There is a large field of winter beans near my house, and I observed bees making holes in the blossoms near the stalks and visiting flowers which had previously been pierced. Some of the bees were working at the mouths of the blossoms (I presume in quest of pollen), but I never saw a bee which was so engaged on one flower subsequently attack the other end of another blossom; the same bee invariably seems to pursue the same tactics. In the field in question nine out of ten blossoms seemed to be pierced, but in a field near Malvern I could not find a single bean blossom which had been thus treated.

Mr. Pettigrew seems to find that hives which are two years without swarming are liable to be attacked with foul brood. This is not my experience. I have kept bees for twenty-three years and have subjected many hives to much manipulation, but foul brood has never made its appearance in my apiary. My oldest Stewarton colony is four years old, but the bees are perfectly healthy and the combs are not overlaid with pollen.—J. E. BRISCOE, *Albrighton, Wolverhampton.*

THE BEE SEASONS OF 1877 AND 1878.

ALTHOUGH the early part of the month of May gave promise of early swarming and early honey harvests bee-keepers were soon undeceived, and entered upon the most trying season of the year to their pets and to themselves. From the 6th of May until the 30th in this neighbourhood we have had but two or three days on which the bees could store a few ounces of honey. Several of my friends have remarked, "What a trying time for the bees!" but upon reference to my apiary notes of last year I was surprised to find how the seasons repeat themselves. Flowers of all kinds were certainly a fortnight earlier this spring than they were last year, but this was owing to the milder weather in March and April—indeed to the unusual mildness of the whole winter; at the same time the weather and its effects upon the bees were identical this May with what we experienced last year. I thought that a few notes from my diary might be interest-

ing to those of your readers who have not themselves taken notice of this fact.

1877.	1878.
May.	May.
8th to 13th.—S.E. winds; cloudy; no work done.	8th.—Rain all day.
13th & 14th.—S.W.; rain and wind; bees prisoners.	9th & 10th.—Cloudy and E. winds.
16th to 20th.—Wretched weather; rain with gales of wind nearly every day; fed several hives.	11th & 12th.—Showery; bees at work a little between showers.
21st to 24th.—Gloomy, cold, and windy; N.E. winds and no sun; bees killing off brood; whitethorn and cherry blossom blackened as soon as it unfolds.	13th.—Showery and very windy; S.W.
26th.—N.E. wind, gloomy, and cold.	14th to 19th.—N.W. and S.W. winds; very windy and wet; violent squalls and thunderstorms.
26th.—Calm, E. wind, very cold, gloomy.	20th.—Stormy and much colder.
27th.—Wind changed to W., warmer, gale to westerly noon and heavy rain.	21st.—Violent storms, thunder and hail; bees deserted three supers which they had entered three weeks ago.
28th & 29th.—Stormy windy days; bees get out a little between showers, many to perish, washed down by heavy showers. Fed all hives; bees are numerous and lie up in supers over the zinc sheets, but cannot get to work.	22nd.—Showery and cold.
30th.—Storms of wind and rain, but much warmer.	23rd.—Fed all hives; rain until 12 o'clock, then warm and fine.
31st.—Warm; bees out en masse.	24th to 26th.—Stormy days with gleams of sunshine.
	27th.—Thunderstorms.
	28th.—Warm and showery.
	29th.—Weather most miserable—cloudy, cold, N.E. wind.
	30th.—N.E. wind; cloudy but warmer.
	31st.—S.E. wind, clear and warm; bees hard at work and honey being brought in.

The following is a copy of my notes from May 1st of this year, showing the effects of the weather on a hive of bees which hangs from a Salter's balance.

Date.	Weight.	Loss.	Gain.	Remarks.
	lbs. ozs.	lbs. ozs.	lbs. ozs.	
May 18	55 0	—	—	Windy and rainy.
" 20	51 8	4 8	—	Showery.
" 22	49 8	2 0	—	21st, wet; 22nd, showers, finer P.M.
" 23	50 0	—	0 8	Fine until 2 P.M., then thunderstorm.
" 25	50 0	—	—	Showers and sunshine.
" 26	51 0	—	1 0	Fine A.M., showers P.M.
" 27	50 0	1 0	—	Heavy thunderstorms all day.
" 28	50 0	—	—	Showery, but warmer; hive very full of bees; super (weight 7 lbs.) put on after weighing.
" 28	57 0	—	—	Cold, N.E. wind; cloudy all day.
" 29	55 8	1 8	—	Cloudy, but fine and warmer.
" 30	56 8	—	1 0	S.E.; calm; beautiful sunny day.
" 31	59 0	—	2 8	

The above shows that in a fortnight the hive has lost in weight 4 lbs.—P. H. PHILLIPS, *Offley Lodge, near Hitchin.*

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1878.	June.	Barometer at Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temp. perature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.		On grass.
We. 5		Inches.	deg.	deg.	N.	deg.	deg.	deg.	deg.	deg.	In.
Th. 6		30.040	51.8	50.0	N.	56.2	50.0	110.0	50.1	0.070	
Fri. 7		30.210	51.8	54.8	N.W.	55.3	60.7	47.3	114.3	42.2	
Sat. 8		30.185	61.6	58.0	S.W.	57.0	60.6	50.8	105.6	45.2	
Sun. 9		29.808	68.7	61.4	S.S.E.	57.2	73.8	51.4	108.0	46.5	
Sun. 9		29.632	63.0	56.5	S.E.	57.2	67.2	51.4	114.2	49.6	
Mo. 10		29.740	60.2	52.6	W.	57.2	67.4	51.0	120.8	48.2	
Tu. 11		29.634	55.6	54.0	S.E.	57.2	63.5	51.4	97.3	48.6	
Means		29.885	59.9	55.3		56.8	67.6	50.5	109.3	47.3	
										0.365	

REMARKS.

5th.—Dull morning, showery afternoon, fine evening.
6th.—Cold cloudy morning, sunny afternoon, bright and warm.
7th.—Fine in early morning, dull and cloudy between 8 A.M. and 1 P.M.; fine and pleasant the rest of the day. Bright meteor seen in S.W. at 9.52 P.M.
8th.—Close dull morning, heavy rain in afternoon, thunderstorm from 4.30 P.M. till 4.55; fine evening.
9th.—Fair day, cloudy and dull at intervals. [fine bright evening.]
10th.—Fine morning, sharp shower and thunder between 1.30 P.M. and 2.30; fine and pleasant the rest of the day.
11th.—Heavy showers with intervals of sunshine during the day; high wind. Rather finer than previous weeks, but still damp with heavy showers.—G. J. SYMONS.

WEEKLY CALENDAR.

Day of Month	Day of Week	JUNE 20—26, 1878.	Average Temperature near London.			Sun Rises.		Sun Sets.		Moon Rises.		Moon Sets.		Moon's Age.		Clock before Sun.		Day of Year.
			Day.	Night.	Mean.	h.	m.	h.	m.	h.	m.	h.	m.	Days.	m.	s.		
20	TH	Royal Society at 8.30 P.M.	72.1	49.1	60.6	3	44	8	18	11	17	9	33	19	1	14	171	
21	F	Edinburgh Fanny Show.	73.8	51.0	62.4	3	44	8	18	11	28	10	43	20	1	27	172	
22	S	Alexandra Palace Rose Show.	73.4	49.5	61.5	3	45	8	18	11	40	11	52	21	1	40	173	
23	SUN	1 SUNDAY AFTER TRINITY.	72.3	47.8	59.8	3	45	8	19	11	51	1	1	22	1	53	174	
24	M	Royal Geographical Society at 8.30 P.M.	73.8	49.3	61.6	3	45	8	19	morn.		2	12	23	2	6	175	
25	TU		72.7	49.6	61.1	3	46	8	19	0	5	3	24	24	2	18	176	
26	W	Kingston, Leeds, and Brixton Shows.	73.8	50.3	62.0	3	46	8	19	0	23	4	39	25	2	31	177	

From observations taken near London during forty-three years, the average day temperature of the week is 73.1°; and its night temperature 49.4°.

From observations taken near London during forty-three years, the average day temperature of the week is 73.1°; and its night temperature 49.4°.

SEASONABLE NOTES ON FRUIT-TREE INSECTS.

AMIDST the many troubles, anxieties, and annoyances against which gardeners have continually to contend few are more annoying or more difficult to deal with than the hosts of insects which are so liable at all times to infest fruit trees. About this period of the year, when the young shoots and leaves are tender and sweet, few trees escape some insect or other, and many are blighted so extensively that the following season will not see their entire recovery. Very often fruit trees under the care of the very best of gardeners will become infested with insects, although everything imaginable may be done to keep them clean.

Dry weather is generally supposed to be favourable to the rapid increase of all kinds of fruit-tree insects, but wet weather seems to favour many of them just as much, as this season we hear from many parts that insects are unusually numerous on fruit trees, and certainly they have been washed often enough with rain lately. In small gardens Gooseberry and Currant bushes very often form the principal bush-fruit crop. Caterpillars are the most troublesome pest that attacks them. Very often they strip the bushes entirely of their leaves just when the fruit is about half swelled. When this occurs the fruit ceases to swell, the crop is lost, and in many cases the bushes never recover. We have some hundreds of Gooseberry and Currant bushes, and we rarely lose that number of leaves by the caterpillar throughout the whole year. Our means of checking their depredations can hardly be called a remedy or cure, as it simply consists of a little forethought. Whenever a leaf is noticed to have been touched by the caterpillar the whole bush is looked over and every one caught and killed. In this way they never make any headway, and when they are caught before they are numerous it does not take long to kill every one of them. Of course, if they are not caught until the bushes are half consumed it is no use trying to gather them then, because they are too numerous and increase too rapidly. This is the only plan we adopt to keep all our fruit trees free from caterpillars, and the vegetable quarters are kept clean in the same way.

I have no doubt many of your readers will have noticed that wall-fruit trees are much more liable to become infested with insects than standard bushes, although the latter are affected in some instances. Green fly is one of the worst insects that infest Cherry, Plum, Peach, and Nectarine trees. It is not so bad on Apples, Pears, and Apricots. Here, again, it is a great advantage to begin checking the pest in time. It is a simple matter clearing green fly when this is done before they have time or are become so numerous as to curl the leaves, but when they are allowed to do this it is a most difficult matter to cleanse the tree. Immediately green fly is observed on any fruit tree a good handful of tobacco paper should be placed in a pan with five or six gallons of water, allow it to remain there for an hour, and press it occasionally with the hand

to take all the juice out of it. This makes the water the colour of porter, and if the affected parts are thoroughly syringed with this the fly will make no further progress. When a lump of Gishurst compound is mixed with the solution it kills red spider and thrips, and checks blight as well; in fact, tobacco water mixed in this way is one of the best of insecticides, and every person who wishes to have fruit trees free from insects should use it. When the leaves are so badly curled that the water cannot get into their centre, a little of Pooley's tobacco powder should be dusted over them and be allowed to remain on for a couple of days, when it may be syringed off with clean water, and in nine cases out of ten the fly will have disappeared. When the trees are blighted as well as infested with insects a quantity of flowers of sulphur should be mixed up with the other ingredients, and it is a good plan to use a little of this for red spider as well as blight.

Apricot trees are generally very free from insects, but there is one troublesome little one often pays them too much attention; this is a little white worm, grub, or caterpillar. It is generally surrounded with a fine spider-like web, and the leaves curl round it and become perforated at the same time. Pressing all the folded leaves firmly between the finger and thumb kills the maggots, and when they are on the points of this year's shoots the points may be cut off and burned. We are often pestered with large shell snails crawling up our brick walls and eating holes in the sides of the Peaches, Nectarines, and Apricots about this time of the year. This spoils the fruit, but we never have many fruit destroyed in this way, as we look over the walls frequently and kill all the snails we can find. I do not know of a better prevention than this.

As a rule it is the young shoots, or their points, that are attacked by insects of any description, and it is a good plan to attend well to cutting-in these, or what is termed "summer pruning." There is another excellent means of keeping fruit trees clean and healthy which I must not forget to mention. In hot dry weather the roots should have copious supplies of water, and when the ground over the roots shows signs of cracking it should be covered over to the depth of 4 inches with half-decayed manure.—A KITCHEN GARDENER.

QUILL BUDDING.

Now that the Rose-budding season is approaching I really must say a word on behalf of this practice. What I would suggest is to use a quill instead of a knife when the pith has to be extracted; by this the process is very much easier and more successful. I do not write, of course, for professionals, but for amateurs, especially those beginning or ending. I will answer for beginners finding it much easier to get the wood out in this way; also for failing eyes the plan has its attractions. A friend of my own, a determined Rose-rearer, but not as young as he had been—whose better half had the further advantage of being twenty years younger—was accustomed, after taking off the buds, to hand them to his wife; he could not see to accomplish the further manipulation. I do not bud on a large scale, but

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I would say *Erperto crede*. My experience since 1864 is all in its favour. I never think now of preparing a bud in any other way.

I am quite prepared for the fate which these rash remarks will probably bring upon me. I have not forgotten the burst of Homeric laughter which greeted me when I ventured to propound this theory in the pages of our Journal in December 1874. Said my friend Mr. Hubert Bensted—(may his shadow never be less and his success at the National every year more)—“Necessity compels me to carry a toothpick, but for the purpose its name denotes: certainly not as an aid in the operation of budding.” That is a very fair criticism, but possibly I shall find someone who has also adopted this plan to support me in advocating it. At any rate I plead for the giving it a trial. As the imperilled Athenian said, although not exactly under similar circumstances, “Strike but hear!” So I would adopt—Laugh but listen, triumph but try!—A. C.

THE ORCHARDS OF HEREFORD AND WORCESTER.

(Concluded from page 424.)

2. THE next cause that acts so much to check English fruit-growing is the foreign importation. Of course fruit from abroad is landed in large consuming towns and close to railways, so that it can be easily and cheaply distributed over the country. Nobody would deny that we could produce fruit enough for our own use, and the question arises whether, for the sake of removing a very slight addition to the immediate cost of an article to the public, it is worth while to persistently discourage an excellent industry, pay our money into foreign pockets, and reduce employment for our large population. Depend upon it the fourpenny loaf is well worth fivepence to the English labourer if entirely grown in his own country. Let us be only reliant and self-supporting. Besides, if English fruit-growers had really a fair chance English fruit would soon be as cheap as foreign supplies.

It is well known that the diseases which foreign cattle bring in with them destroy more English meat than they supply. The importers of foreign cattle possess by their wealth an improper influence, and the importers and dealers in foreign fruit to some extent the same. “Why,” says a writer on English agriculture, “do we not turn fruit-growers? I was in Covent Garden Market yesterday, there were £20,000 worth of fruit, and it was all from abroad.” Every year we had articles in the papers on this subject. The chief reason why this cultivation is not increased is because there is no getting a fair price for the produce.

When a Worcestershire farmer travels to Manchester or London in the vain hope of selling his large stock of splendid fruit, he is told that foreign fruit can be got so cheaply that he cannot be offered anything worth his acceptance. What is the consequence? The farmer goes home disgusted, five or six extra men hand-picking at 2s. 6d. a-day are dismissed, and the fruit is either made into cider or devoured by the sheep and pigs. At rent day, when the farmer meets his landlord, he cannot pay all his rent, his farm being valued at, perhaps, 10s. per acre all round over its corn-growing value for the fruit that is supposed to be sold off it.

Then as to labour. A few years ago there seemed no certainty at all as to where the demands of the agricultural labourers would stop, and farmers all turned their attention to methods of making money without need of labourers. Of course to market a crop of fruit takes labour, and that of an expensive kind. Had the movement continued the English labourer might soon have found himself out of employment altogether; and although wages were raised to the highest pitch five or six years ago, Worcestershire farmers have never since reduced them. Still, the attitude of the labourers caused terrible mischief, and has in these counties conducted to the present lamentable state of agricultural affairs.

No doubt we have improved, and that enormously, in our stock-raising. Every farmer now knows how to fetch fat mutton into the market at ten months, and fat beef at twenty months old, which sort of supplies, though inferior to what are raised naturally, pay well, and in this we beat our forefathers altogether. But, alas! for the ploughed land. Will anyone look at our fruit-growing districts and say if there is any improvement here? Where are the crops of Wheat and Beans that were grown forty years ago? Where is the workmanlike clean appearance of the land, and where are the workmen? We must be growing less and less corn every year.

3. And this brings us to the last cause we will mention of

the deterioration of our fruit-growing. Certainly in this district all farming except stock-raising is going backwards, and at the same time we are trying to make ourselves believe it is quite the contrary. Landlords in this neighbourhood have determined to have the land farmed on what is called the “high” system, and they want to help both themselves and the farmers by reducing labour. Trees wherever planted are of course an obstacle to the use of machinery, but the system of farming, which no doubt answers well in the Lothians of Scotland and on the broad plains of Norfolk, will never succeed in such a neighbourhood as this. The whole formation of the country and the character of the soil are against it. It by no means follows that old-fashioned farming is bad farming, and although numberless improvements have been made in detail, it is certain that the cultivation of the soil in this neighbourhood is not so profitable to the farmer, the labourer, or the country at large as it used to be.

No greater mistake is being made than that of the land-owners in discouraging fruit cultivation, or perhaps, rather, not exerting themselves to interest and improve it. Every farm should be well inspected with regard to its fruit-growing capabilities. Orchards that are half-stocked with trees should be planted up and kept planted up. Tenants should be bound to plant a new tree for each one that comes to an end. The green orchards which are almost worn out should be either entirely planted up or entirely rooted out. A farmer is often losing weekly £5 worth of dairy or other produce for the sake of a pound’s worth or so of fruit that is not fit to be gathered. An orchard should be well worth shutting up altogether when necessary, and by taking care no inconvenience will be occasioned. It is easy to eat down the orchards bare and let the open land grow up till the middle or end of August.

Straggling trees all over the farm are a great nuisance on this account also. Cattle thus get a chance of tasting the fruit, and they often, especially in a dry season, get such a “hankering” after it that they cannot be safely confined in any field by any fence. A dairy of cows turned into a field of splendid keep, after being brought back from their “fruiting” will not put their heads down to eat for hours together.

Why we bring our Wheat from Russia and our fruit from America, leaving agriculture in our own land to go downhill and the country generally to be ruined, is a question to which economists might well apply themselves. Our soil is probably not above the European average, but, on the other hand, we have more capital than any other country, and we have far more knowledge of how to apply this capital to agriculture. Were this surplus capital put into our own soil, and those branches of agriculture encouraged which feed most and employ most, we should find ourselves at times like the present in a very different position. Why, it is said that the troublesome little state of Servia can put more men into the field than we. Vegetarians will be interested to know that the only branch of industry in that country is Plum-growing. There can be no doubt that by increased attention to fruit-growing in England a great deal more useful wholesome food would be produced and many more people employed. Of what use would be tons of gold and silver in the Bank of England if foreign produce were prevented by any reason reaching our shores?

It is satisfactory to turn for a moment from the Apple and Pear cultivation of this district, which is certainly either at a standstill or going downhill, to that of Plums, Gooseberries, and Currants, carried on so extensively in the neighbourhood of Pershore. Enormous plantations of the white *Magnum Bonum*, commonly called the Pershore or Egg Plum, are there to be seen, and it is difficult to know when market gardening ends and farming begins. One holding of two hundred acres is entirely devoted to Plums and Gooseberries, with the exception of a few Pears, and is well worth going a long way to see. On an average this garden is very profitable, but the losses some years are of course very great. It was planted by Mr. Varden, an engineer who was employed in the construction of the Great Western Railway, and who was so much struck with the Pershore system of cultivation that he devoted himself to it on this scale. Since his death it has been bought by Mr. Bomford, who farms about three thousand acres besides.

Along the Teme valley are many valuable Cherry orchards, some of which bring from £10 to £15 an acre annually to the farmer without expense on his part, the crop being sold on the trees by auction or otherwise. Cherries should invariably be planted together, and as thickly as possible, as it is necessary

for some weeks before they are gathered to have a man living in the field to scare the birds.

Damsons would be more cultivated were it not for the difficulty of getting women to pick them. A woman must work hard to pick a pot in a day, and there are fewer women to go to work now than formerly. Damsons fetch as much as 3s. a pot in some good years, and are always saleable on account of being used for dyeing purposes. Plums here in a very abundant year can hardly be got rid of at all. Damsons, of course, do better on light soils, but they thrive well along with the Apples and Pears.

ROSE SHOWING.

"ONE thing more—one more delight I must mention, and that is the delight of giving away the prize Roses. Send to those who have not any. During the rest of the season help one of the flower missions. If you so much enjoy those splendid flowers about your drawing-room, think of the brightness they must shed round the sick ward of the hospital! Let these lead them—have they led us?—to thank the Great Giver of all good things. That is to carry love of Roses beyond the world."

So Mr. Cheales ends his pleasant little article on "Rose Showing" in the "Rosarian's Year-Book" and with the great Rose shows approaching on the one hand and hospital Saturday and Sunday on the other, the thought occurred to me whether those who love the Rose and who grow it in such perfection could not, without loss or inconvenience, do something in the way suggested by Mr. Cheales to alleviate the pain and to cheer those who, without some such help, must pass the hottest time of the year and the time of the garden's greatest beauty in all the discomfort of the former and without any anticipation in the latter.

There are, as most of your readers are doubtless aware, several flower missions in London, the members of which go to the hospitals, &c., on visiting days and speak a few cheering words to each inmate, and whenever they can they leave a posy or a single bloom at each bed, and who can tell what that flower is to the poor sufferer? Now, if those exhibitors who read your Journal would consent to give their flowers, or some of them, to these missions, I feel sure the Directors would only be too glad to send someone to receive them at the close of the show.

If you approve of the plan will you please insert this in your next issue and request those exhibitors who are willing to give their flowers to send their names to you before the publication of the following number? and then, although it will be too late for the Alexandra Palace Show, some of the exhibitors at the Crystal Palace and other shows will have the pleasure of knowing that their flowers are affording happiness to others after having served their exhibition purposes.—A LOVER OF ROSE SHOWS.

ANNUALS AT REGENT'S PARK.

LAST year the great Holborn firm of seedsmen, Messrs. James Carter & Co., instituted an innovation in exhibiting by arranging the greatest display of annuals in pots ever brought together in this country. Although a first attempt on a scale of great magnitude, the Exhibition was so far successful and appreciated as to warrant the firm providing another display of the same nature this year. The season hitherto has been singularly dull, and by no means favourable for promoting the expansion of bright masses of flowers such as annuals are capable of producing, and it would not have been a matter of surprise had the Exhibition this year been comparatively dull, or, as some who are not prepossessed in favour of these floral simplicities would prefer to describe it, "weedy." The display, however, is neither dull nor weedy, but on the contrary it is singularly bright, cheerful, and satisfactory. The plants as regards their cultivation are decidedly better than last year, and they are also arranged more effectively.

When twenty-five thousand pots of annuals are grown and a floral picture of a month's duration has to be maintained it is a matter of necessity that the Exhibition must change in its character weekly, as fading plants must be replaced by others just expanding their flowers. On the opening day, for instance, we missed the charming miniature *Ionopsisidium aculea* that last year produced such a chaste display, yet this plant will probably be represented some time before the Exhibition closes.

The plants are arranged in the long corridor of the Royal

Botanic Society's Gardens, which structure they fill from end to end, forming a floriferous sloping bank of many colours, about a hundred yards in length and 8 or 9 feet in width. The more prominent colours are displayed in a series of large panels separated from each other by lines of contrasting colours and elegant groups of Grasses. Some of the panels are formed of brilliant masses of dwarf *Nasturtiums* (*Tropæolums*) comprising crimson, yellow, scarlet, and rose-coloured varieties; others are filled with *Schizanthuses*, than which few annuals are better worthy of cultivation in pots. The more noteworthy varieties are *S. oculatus albus*, very 'chaste'; *S. o. tigridioides*, richly feathered; and *S. o. atroviolaceus*, highly effective. The different varieties of *Centranthes* are represented also by bold yet elegant masses of rose and white; and extremely rich, perhaps the richest of all, are the intense violet groups of *Kaulfussia amelloides atroviolacea*. The variety *rosea* also makes a sparkling mass which finds many admirers. Perhaps, however, one of the most pleasing panels is of *Nolana paradoxa*; the large corulean blue *Convolvulus*-like flowers with white centres command much attention.

The taller plants consist chiefly of *Helichrysums* in variety, and white and yellow double and single *Chrysanthemums*. *Helenium Douglasii*, with brilliant, orange *Coreopsis*-like flowers, is extremely gay; and attractive are the *Gilias*, the lavender blue of *G. cespitosa major* and the pure white of *G. nivalis*. Dwarfier plants are composed of *Silene compacta* and *Leptosiphons*. Perfume is imparted by *Mignonette*, which, with Musk, forms the entire front row of the arrangement, backed by a long line of *Rhodanthes*.

On the opposite side of the promenade carpet bedding in miniature is represented; such plants as *Alternantheras*, *Netteras*, succulents, dwarf *Lobelias*, &c., being artistically associated in boxes 2 feet long, 1 foot wide, and 4 inches deep—a hint that those interested in window-sill decoration might well turn to account.

On the whole this Exhibition is an excellent one of its kind; it quite surpasses the display of last year, and can scarcely fail to popularise still more a charming and popular class of hardy flowers—annuals.

NOTES ON THE AMATEURS AND FLORISTS OF NORTH DURHAM AND NORTHUMBERLAND.

MR. JOHN WALKER, BELLE VUE, LOW FELL, GATESHEAD.

THERE are few flowers that gain more aspirants to master the secrets of their successful culture than Dahlias, nor perhaps is this to be wondered at when we consider their many hues of colour, their profusion of flowers, their graceful forms, and their long continuance in bloom in the autumn; indeed, the wonder is that in gardens of large pretensions they have of late become so much ignored. When most of our herbaceous flowers are on the wane, and our many styles of bedding-out are beginning to lose their attractions, we can look with pleasure on the bright and noble Dahlias. Dahlias have been cut quite fresh a few miles from Newcastle-on-Tyne on the 11th of November. That was in the year 1874, but once the thermometer falls much below the freezing point their doom is sealed. There are, perhaps, few more pleasing sights when the sun is setting on an autumnal eve than a *parterre* of Dahlias in full bloom. When the contrasts of colour and shades are viewed in the light of the setting sun each shade is vividly brought home to the eye as it were by Nature's own mirror.

But our present object is more to dilate on the properties of the Dahlia as a florist's flower, and to associate therewith the name of Mr. Walker. His career as a florist does not date very far back. He commenced but in 1871, and when it is stated that in that time he has taken a leading position as an exhibitor in the north, where so many Dahlias are grown, and in addition to that he travels three miles to his work, and is there by 6 A.M., and pursues his avocations in a heated forge as long as ten or twelve hours, some idea of the indomitable efforts he has employed to obtain a success may be estimated.

Mr. Walker's garden is not of large dimensions, and he is therefore compelled to grow his flowers annually on the same piece of ground. His culture is to dig over the ground one or two spits deep immediately after taking up the tubers in the autumn, and then to turn it over in February and again in April, at which time he adds cow manure not too much decomposed. Strong plants are prepared for planting out about the end of May. They are placed 4 feet apart, and the ground is mulched in July with 4 to 6 inches of horse droppings. As soon as the flowers show water is given copiously, and a little

guano is mixed with it. Insects are not permitted to exist on the plants; assiduous attention is given to tying and thinning the shoots; the blooms are shaded by encasing each flower in a muslin bag. This method he considers cheapest and best of the various modes of protection adopted.

Mr. Walker attributes his success mainly to the time and care bestowed upon the plants and flowers by having every little matter attended to when required; in fact, this may be said to be the secret of success in every department of gardening. Last year Mr. W. carried off nearly all the first prizes at both Alnwick and Bishop Auckland. Both Shows are generally the centres of a great display of florists' flowers. Appended is a list of Mr. Walker's favourite flowers.

Vice-President, orange buff; Flora Wyatt, orange; Alex. Roger, buff; Alex. Cramond, shaded maroon; Criterion, lilac; Baron Taunton, lilac; Mrs. Harris, white ground, lilac edge; Henry Walton, yellow ground, vermilion edge; James Cocker, purple; Jno. McPherson, purple; Ovid, purple; Willie Eckford, crimson; Delicata, salmon; Herbert Turner, white; Mrs.

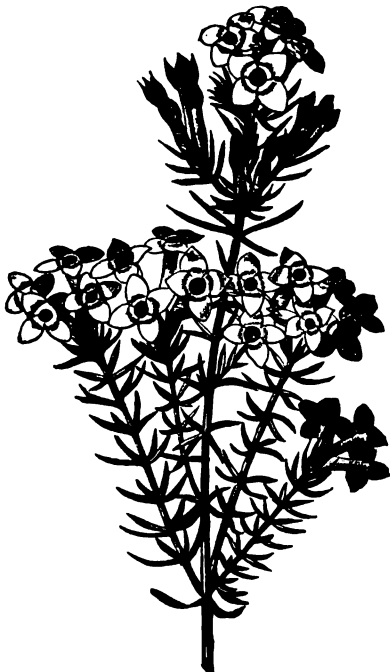


Fig. 69.—*Erica mundula* (see page 466).

Stoncomb, pale yellow tinted with fawn; Prince Arthur, yellow; Buttercup, yellow; Mrs. Neville Keynes, yellow; Jno. Standish, bright red; Chris. Ridley, bright crimson; Hebe, light, edged with rosy purple; Memorial, rosy peach; Thos. Goodwin, dark; and Royal Queen, cream, purple edge.—B. C.

ROYAL HORTICULTURAL SOCIETY.

JUNE 18TH.

ROSE AND PELARGONIUM SHOW.

MOST popular of all hardy flowers are Roses, of that there can be no doubt; and most popular of all greenhouse flowers are Pelargoniums, of that there can be little doubt. A twin show, therefore, of those two flowers, assuming both to be well represented, could not fail to possess great attractions both to florists and general visitors. On the Society's posters, which were distributed generously throughout the metropolis, Roses were made the prominent feature, Pelargoniums being in smaller characters and secondary; but at the Show the reverse was the case. Pelargoniums there preponderated. The earliness of the date and low temperature that has lately prevailed prevented Roses being forthcoming in full force, yet for all that some splendid blooms were exhibited. In addition to the Roses and Pelargoniums the various nurserymen contributed collections of plants of great value and beauty, and these, with a strong and excellent contingent from Chiswick, formed one of the most attractive exhibitions of the year. The large marquee was filled without being crowded, the collections being disposed with much taste by Mr. Barron and his staff of assistants.

ROSES.—The warm and genial weather so generally experienced during the greater part of the month of June is considered by rosarians to be favourable to the development of large and bright Roses. The present month has hitherto been cold and cheerless; thunderstorms and fierce winds have generally prevailed, and have been almost continuous day after day. For a season like the present one the fixture for this Show was a little too early. These drawbacks no doubt prevented many exhibitors from entering, and consequently the quantity of Roses staged on this occasion was not so large as usual. Messrs. Paul & Son, Mr. Keynes, and Mr. Turner exhibited in fine form, as did several amateurs. The schedule was not a comprehensive one, but the prizes offered were remarkably good, and the amounts were such that had the season been favourable there would have been an immense competition.

In the class for forty-eight distinct, single trusses (nurserymen), Mr. J. Wyatt (for the executors of the late John Keynes, Castle Street Nursery, Salisbury), was awarded first honours for a remarkably fresh and even collection, consisting of *La France*, very good; *Maréchal Vaillant*, *Marquise de Castellane*, *Marie Baumann*, *Edward Morren*, *Madame Charles Wood*, *Princess Beatrice*, &c. Messrs. Paul & Son, The Old Nurseries, Cheshunt, were placed second with *Nardy Frères*, *Duchesse de Vallombrosa*, *Général Jacqueminot*, *La France*, *Cheshunt Hybrid*, *Madame Hippolyte Jamain*, *Mrs. Laxton*, *Centifolia Rosea*, *Monsieur G. Tournier*, *La Rosière*, *Abel Grand*, *Etienne Levet*, *Elie Morel*, *Mons. Fillion*, &c. Messrs. Curtis, Sanford, & Co., Devon Rosery, Torquay, third.

For twenty-four distinct, three trusses of each (nurserymen), Mr. J. Wyatt, Messrs. Paul & Son, and Mr. C. Turner were awarded the prizes in the order of their names. The first-prize collection comprised glorious *La France*, *Charles Lefebvre*, *Marquise de Gibot*, *Marie Baumann* (superb), *Etienne Levet*, *Souvenir d'un Ami*, &c. In the class for twenty-four distinct, single trusses (nurserymen), Messrs. Paul & Son were awarded the first prize for grand blooms of *Madame Prosper Langier*, *Marquise de Castellane*, *Miss Haasard*, *Horace Vernet*, *La France*, &c. The second prize fell to Mr. C. Turner, who had good examples of *François Michelin*, *La France*, *Madame Victor Verdier*, &c. Mr. G. Cooling, nurseryman, Bath, was third for a very good collection. In the corresponding class for amateurs the Judges awarded first honours to J. Hollingworth, Esq., Turkey Court, Maidstone; and the second to I. Jowitt, Esq., Old Weir, Hereford, for a very fresh and even collection. The Rev. J. B. M. Camm, Monkton Wyld, Charmouth, Dorset, received the third prize for a collection that consisted of several fine Tea Roses. For twelve distinct single trusses (nurserymen) Mr. Wyatt was again first, closely followed by Mr. Turner, who received the second prize, and Mr. Cooling the third. In the class for twelve distinct, three trusses of each (amateurs), the first prize was awarded to J. Hollingworth, Esq.; and the second to Mr. J. W. Moorman, gardener to Miss Christy, Coombe Bank, Kingston-on-Thames, both showing very fine and even collections. For twelve distinct single trusses (amateurs) Mr. J. Ridout, gardener to J. B. Haywood, Esq., Reigate, was placed first; J. H. Pemberton, Esq., Havering-atte-Bower, Romford, second; and the Rev. J. B. M. Camm third, all showing well.

For twelve distinct, Tea or Noisette (open), John Hollingworth, Esq., received the first prize; Mr. Cooling second, and Messrs. Paul & Son third. For six of any one sort of Hybrid Perpetual (open), Mr. Wyatt won the first place with *La France*, Messrs. Paul & Son the second with the same variety, and J. B. Haywood, Esq., third with *Madame Victor Verdier*. The best six of any sort of Tea or Noisette (open), was *Maréchal Niel*, exhibited by Mr. Cooling; Mr. Jowitt winning second honours with *Cheshunt Hybrid*, and Messrs. Paul & Son third with the same variety.

For six distinct new Roses of 1876 and 1877 (open), Messrs. Paul & Son were a good first with *Madame Deveril*, Mons. Gabriel Tournier, Mrs. Laxton (which was perfection), Oxonian, Mrs. Baker, and Sultan of Zanzibar, which was very good; it is a very dark velvety variety, with a cup-shaped centre, and the outer petals reflexed. Messrs. Curtis, Sanford, & Co. were second. They exhibited Mons. Fillion, *Duchesse de Vallombrosa*, *Abel Carrière*, *Madame Sophie Trophet* in the way of Victor Verdier, Mons. G. Tournier, and a very large full Rose named *Madame W. Bull*.

Messrs. W. Paul & Son, The Nurseries, Waltham Cross, exhibited a collection of ten boxes of Roses, including one of Moss varieties, which was much admired. To this collection the Council awarded a silver Banksian medal. Mr. W. Rumsey, Joyning's Nursery, Waltham Cross, also exhibited a collection, and received the Society's bronze medal.

The prizes offered for Pelargoniums were liberal, and many of them were responded to by excellent collections. In a few of the classes, however, there was no competition, and in others some of the prizes were withheld.

SHOW PELARGONIUMS.—"Florists' class," by which is meant flowers of superior form in combination with regularity of colouring. Class I was for six plants, distinct, in pots not exceeding 8 inches in diameter. Mr. James, gardener to W. F. Watson, Esq., Redles, Isleworth, was in the foremost place with admirably

grown plants of Judith, Example, Magnificent, Superb, Isabella, and Scottish Chieftain, all of which fine varieties were sent out by Mr. Charles Turner. Second honours went to Mr. Weir, gardener to Mrs. Hodgson, The Elms, Hampstead, for plants far behind Mr. James's handsome specimens. For six plants, distinct, not in commerce, the renowned raiser E. B. Foster, Esq., Clewer Manor, Windsor, won the prize with the following:—Dauntless, rosy salmon lower petals, maroon top petals, smooth, round, and of great substance; Symmetry, a generally darker flower than the preceding; Invincible, very dark velvety maroon upper and bright salmon lower petals; Marmion, a flower of the same type as Dauntless; and Gladiator, rich glowing orange scarlet, maroon upper petals, and white centre.

FANCY PELARGONIUMS.—"Florists' class," six plants, distinct, in pots not exceeding 8 inches in diameter. The two exhibitors above named (Mr. James and Mr. Weir) were placed in the same positions in this class, Mr. James's plants being magnificent floral globes 4 feet in diameter, and Mr. Weir's much smaller. The first-prize varieties were Mrs. Hart, Mrs. Graham, Mrs. A. Wigan, Mirella, The Shah, and Princess Teck. For four plants, distinct, not in commerce, Mr. Turner, Slough, was without a rival, and won the chief prize with the charming varieties Joannette, Placida, Thurio, and Insulaire.

DECORATIVE PELARGONIUMS.—"Show" type, by which is meant varieties with fringed, spotted, or semi-double flowers, known as "market" or "regal" varieties. The chief class was for eighteen plants in pots not exceeding 6 inches in diameter. Messrs. J. & J. Hayes, nurserymen, Lower Edmonton, had the chief place with a charming collection, many of the colours, being exceedingly bright, and all pleasing. The varieties were Duchess of Bedford, Queen Victoria, Princess Helena, Prince of Orange, Digby Grand, Rosella, Prince of Wales, very bright; Bridal Bouquet, Magenta Queen, Prince of Pelargoniums, Dr. Masters, Alice, Duchess of Edinburgh, Baltic, Capt. Raikes, Le Patria, Triumphans, and Lord Derby. The value of such plants as these for decorative purposes cannot be over-estimated. For four plants, distinct, not in commerce, the same exhibitors won with Magenta Queen, purplish magenta, very floriferous; Prince of Orange, orange salmon, maroon blotch; Sultana, rosy crimson, white centre, glowing; and Le Grand, orange scarlet and maroon, very bright.

ZONAL PELARGONIUMS.—"Florists' class," or varieties with round, smooth, finely formed flowers. The chief class was for nine plants, distinct, in pots not exceeding 8 inches in diameter; and the premier prize was awarded to Mr. Catlin, gardener to Mrs. Lermite, sen., Finchley, with Heather Bell (Denny), Maud (Pearson), Titania (Denny), Miss Strachan (Pearson), Ebone (Denny), Remus (Postans), Ellen (Pearson), Laura (Pearson), and Agnes Emily (Catlin). The plants averaged 8 feet in diameter, and were very dwarf and floriferous. In the class for six plants not in commerce the celebrated raiser, Dr. Denny of Stoke Newington, won the prize with the following grand varieties of his own raising—Sunbeam and Manfred, scarlets; Oneida and Coreggio, rosy crimson; Madonna, pale rose suffused with salmon; and Dante, rosy lilac, white centre. For symmetry of flowers, smoothness and substance of petals, and clearness of colouring these splendid varieties are pre-eminent.

Zonal Pelargoniums, "Decorative class," or varieties with large trusses of showy flowers, such as Hybrid Nosegays.—In the class for nine plants, distinct, in pots not exceeding 8 inches in diameter Mr. Catlin won first honours with splendidly grown and flowered examples of Mrs. Turner, Col. Wright, Mrs. Huish, Rev. Atkinson, Charles Burrows, Rebecca, Lucy Bosworth, John Gibbons, and Thomas Adams. The varieties were all raised by the late Mr. Pearson, and two of them at least, Rebecca and Charles Burrows, have flowers as perfect in form as any in the florists' class. Mr. J. Weir, gardener to Mrs. Hodgson, The Elms, Hampstead, had the second prize in this class.

Four Zonals, distinct, not in commerce.—Mr. Catlin again won with Fanny Catlin, a grand rich salmon, fine flowers and truss; Edith Mary, pale salmon, splendid trusses; John Tullett, soft orange scarlet, fine trusses; and Nancy Lee, a very large salmon flower with white eye. All the varieties were raised by the exhibitor and are extremely fine.

For eighteen Zonals, irrespective of class, in which diversity and brilliancy of colour were considered primary points of excellence.—Mr. Catlin was here again triumphant with Rajah, Zuleika, Heather Bell, Dorothea, Titania, Clio, Faust, Gnome, Majestic, and Ophelia raised by Dr. Denny; and Lady Byron, Lady Eva Campbell, Lizzie Brooks, Rev. Atkinson, John Gibbons, and Mrs. Pearson, fine, raised by Mr. Pearson; and Stewart Durrant, raised by Mr. Catlin. The second prize was withheld, Mr. Weir being awarded third honours; and for twelve plants the first prize was withheld, second going to Mr. Brise, gardener to J. H. Lermite, Esq., Knights, Finchley.

VARIEGATED ZONALS.—In the class for eighteen plants arranged for effect of Gold and Silver Tricolors, and Bronze Bicolors, Mr. Meadmore, Romford, had the first prize with brightly coloured plants about a foot in diameter, but the foliage rather small. Mr. Burley, Brentwood, was awarded the second prize for a moderate collection.

DOUBLE PELARGONIUMS.—For eight plants of the "new dwarf type" in 8-inch pots Mr. Catlin was placed first with Madame Amelia Ballet, pure white; Noemie, rose; Jacobaea, scarlet; Louis Buchner (Sisley), salmon; Eugene Bandowin, rich pink; Sylphyde (Sisley), rose; Henri Buerrier, salmon; and Wonderful, scarlet. The plants averaged a foot in diameter and a little more in height, and were admirably grown and bloomed. Mr. Meadmore, nurseryman, Romford, had the second prize. For four plants of the same dwarf type not in commerce, Mr. J. R. Pearson, The Nurseries, Chilwell, Nottingham, won with unnamed seedlings of his own raising.

IVY-LEAVED PELARGONIUMS.—In the class for eight plants of hybrid or improved varieties Mr. George, Putney Heath, had the first prize with Nemesis, St. George, Gem, Angus, Duchess of Edinburgh, Progress, and Diadem, all of his own raising, and Konig Albert (Leibmann). For four plants of the same type not in commerce Mons. V. Lemoine, Nancy, France, won the prize with A. F. Barron, Mdle. Adrienne Barat, Madame Perle, and Madame Emilie Galle, all double, distinct, and good. A very elegant and valuable collection of Ivy-leaved Pelargoniums grown in the Society's gardens at Chiswick had many admirers. Their effect was singularly chaste yet cheerful, their colours being in effective contrast with the collection of Zonals from the same garden. There were no entries in the classes for Cape Pelargoniums.

SINGLE PLANTS.—For one large-flowered show Pelargonium, "Florists' class," not in commerce, Mr. C. Turner, Royal Nurseries, Slough, won the prize with Bertie, lower petals rosy salmon blotched with crimson, upper petals very dark maroon, of fine form and substance. For one double Pelargonium not in commerce the prize was won by Mr. Cannell; and for one hybrid or improved Ivy-leaved Pelargonium not in commerce Mons. Jean Sisley, Montplaisir, Lyons, France, won the prize with La France, a variety possessing great vigour and rosy cerise-coloured flowers; a fine hybrid and very distinct.

CUT BLOOMS.—For twenty-four large-flowered show Pelargoniums, three trusses of each, Mr. Turner had the post of honour with a collection of grand flowers set in their own foliage. The trusses were extremely imposing. For twenty-four Zonal Pelargoniums, three trusses of each, Mr. Cannell, the Nurseries, Swanley, won chief honours with a collection of great variety, brilliancy, and merit; Mr. Burley, Brentwood, being placed second. For twenty-four double Zonal Pelargoniums, three trusses of each, Mr. Cannell was without a rival, and arranged massive pyramids of wonderful richness and dissimilarity of colour.

MISCELLANEOUS COLLECTIONS.—Mr. Charles Turner did not compete in the Show Pelargonium classes, but gave the public a greater treat by exhibiting sixty plants in new varieties. The smoothness of the flowers and their great substance, and the clearness and intensity of the colours, place these varieties in the very foremost rank of greenhouse plants of superlative quality. A few extremely striking are Sappho, Fortitude, Criterion, Heraldry, Enchantress, Toby, Gipsy, Prince Rupert, Scottish Chieftain, Prince of Wales, Ruth, Archduke, Cicely, Mrs. A. Matthews, Isabella, Prince Leopold, Constance, Lord of the Isles, Illuminator, Viscount, and Evelyn. The colours may be found in Mr. Turner's catalogue. The varieties enumerated are the finest that have ever been staged at any exhibition. Mr. Turner associated with the Pelargoniums a few Palms and Liliiums, and was awarded a gold medal for the collection.

Messrs. James Veitch & Sons staged a charming group of tuberos Begonias, insectivorous plants, Ferns, new and rare ornamental-foliaged plants, and greenhouse Rhododendrons Taylorii and Maiden's Blush, and were awarded a gold medal; and a similar honour was won by Mr. B. S. Williams, who arranged a large and splendid collection, consisting of specimen ornamental-foliaged and flowering plants, Orchids, Amaryllises, Nepenthes, &c., and new highly coloured Dracenas. Mr. Bull also had a gold medal for a group of great value, elegance and richness being combined in a striking manner by splendid Orchids being associated with the charming Gauze Ferns. The spikes of Odontoglossums in this collection were extremely fine, as also were the gorgeous Cattleyas, and the effect of the flowers was enhanced by Cycads, Palms, and variegated Curculigos. A gold medal was awarded to Messrs. Rolleston & Sons for a very fine group of Ferns, ornamental-foliaged and flowering plants hardy and tender. One of the most striking plants in this collection was Iris Romulus, a rich violet colour, unequalled by any Orchid. Mr. Wills arranged a noble and artistic group composed of towering Palms and Tree Ferns with an undergrowth of Moss and flowers, Orchids and Gloxinias, and was granted a gold medal. A similar honour was granted to Messrs. Carter & Co., who arranged a very extensive, varied, and beautiful collection of decorative plants with a marginal boundary of carpet-bedding plants artistically arranged in boxes. A gold medal was further awarded to Messrs. Carter for an extensive and well-cultivated collection of annuals in pots, arranged in the entrance vestibule. They were much admired by the visitors. Messrs. John Laing & Co., Forest Hill, London, arranged a very fine collection of ornamental-foliaged plants, Roses, and bicolor Pelargoniums, and were awarded a silver Banksian medal. Very

striking amongst the Pelargoniums were John Jenner Weir, Exquisite, Mrs. Horniman, The Czar, Maréchal McMahon, and Impératrice Eugénie. Messrs. Hooper & Co., Covent Garden, contributed an extensive collection of decorative fine-foliaged plants, also tuberous Begonias, Achimenes, &c., and were awarded a bronze Banksian medal. Mr. H. Boller had a similar award for a collection of succulents, as also had Messrs. Cutbush & Son, Highgate, for Palms, ornamental-foliaged plants, New Holland plants, &c.—an excellent collection. Messrs. Osborn & Sons, Fulham, were awarded a silver Banksian medal for a fresh and attractive collection of ornamental-foliaged plants. A bronze Banksian medal was awarded to Mr. Burley, Brentwood, for baskets of Pelargoniums, including White Vesuvius, Dwarf White, Unique, and Mrs. McIntosh, a silver variegated with white flowers; all raised by Mr. Postans. Mr. Cannell was awarded a silver Banksian medal for a remarkable collection of cut blooms of Verbenas in forty-eight varieties. The richness and variety of colours and massive trusses represented in this collection arrested much attention and admiration. Messrs. F. & A. Smith, Dulwich, were granted a silver Banksian medal for a fine collection of decorative Pelargoniums. A silver Flora medal was awarded to Mr. R. Parker, Royal Nurseries, Tooting, for a splendid collection of cut flowers of Delphiniums, Paeonies, Irises, and other hardy flowers. Messrs. Barr & Sugden were awarded a silver Banksian medal for an extensive collection of cut flowers of Lilies, Irises, Pyrethrums, Lxias, Babianas, &c., very rich. A silver Banksian medal was awarded to Messrs. J. & J. Hayes, Edmonton, for a large collection of market plants, consisting of Pelargoniums, Fuchsias, Calceolarias, &c. A silver Flora medal was granted to Mr. H. Brown, Hendon, for an admirable collection of decorative Pelargoniums grown for market purposes, they were remarkably fine; and Mr. John Reeves, florist, Acton, was awarded a silver Banksian medal for a very bright and excellent collection of market plants. A bronze Banksian medal was awarded to Mr. Marcham, Springfield Nursery, Spring Grove, Isleworth, for a collection of striped Petunias of great merit. Their effect in the large mass was quite charming. Mr. Roberts, gardener to Baron Rothschild, Gunnersbury Park, exhibited a magnificent plant of *Odontoglossum vexillarium* with twelve spikes and seven and eight flowers on each. Mr. Roberts also exhibited fine plants and varieties of *O. Alexandra*, and was awarded a gold medal. A silver Banksian medal was awarded to Messrs. Downie & Laird, Royal Winter Gardens, Edinburgh, for a grand collection of Pansies, all seedlings of 1877 and 1878. For size, substance of petal, brilliancy of colours, and correct markings these flowers were remarkable, and they elicited a large share of admiration from the visitors who crowded round them.

FRUIT COMMITTEE.—Henry Webb, Esq., V.P., in the chair. Mr. George Lee of Clevedon sent a dish of De Jonghe's Excellente Strawberry. This is a large cockscomb-shaped variety of a dark colour. It is said to be earlier than President, but not so good in flavour. Two dishes of "James Veitch" Strawberry were sent by General Fyche, Pyrgo Park, Romford (J. Lane, gardener). They were very finely grown and of a fine bright colour. Sir Thomas Edward Moss of Otterspool sent a fine dish of Strawberries which were supposed to be President, and one Melon not named. He also exhibited a dish of Tomatoes which were supposed to be Vick's Excelsior. Mr. George Monro of Potter's Bar sent six fruits of a new Melon called Lord Beaconsfield, the flavour of which was very good, but none of the fruit was perfectly ripe, and the Committee wished to see it again. R. Gosling, Esq., Hassobury, Bishop Stortford (C. Tyler, gardener), sent a new Melon called President, a fine green-flesh with a very thin rind and thick tender flesh, which promises to be a variety of superior excellence, but the fruit exhibited was not fully ripe. A dish of Loxford Hall Seedling Strawberry was sent from the garden of the Society. It is a cross between British Queen and La Constante. It is a good firm fruit with good flavour. Messrs. Rivers & Son of Sawbridgeworth sent a collection of five sorts of Orange, and also dishes of Hale's Early and Early Rivers Peach. Hale's Early was very superior in flavour, but Early Rivers was not so good, being rather bitter. A first-class certificate was awarded to Hale's Early. They also exhibited dishes of Belle de St. Tronc, Bigarreau Hâtif de Champagne, Bigarreau Jaboulais, and Bigarreau de Schrecken. Handsome trees of these varieties and nine varieties of Peaches in pots were also exhibited, to which a gold Knightian medal was awarded. Among the latter were several plants of Condor Peach, the fruit of which was of excellent flavour.

FLORAL COMMITTEE.—G. F. Wilson, Esq., F.R.S., in the chair. First-class certificates were awarded to Messrs. T. Cripps & Son for *Clematis Viticella* Earl of Beaconsfield, a grand flower, rich Tyrian purple in colour, glossy and lustrous, and of great substance of petal; to Mr. Cannell for *Dactylis elegantissima aurea*, extremely chaste and elegant; to Messrs. Rollisson & Sons for *Erica obbata expollita*, a fine pure white variety with smooth glassy flowers; to Messrs. W. Paul & Son for Rose Countess of Roseberry, rosy salmon, glossy, of fine form, great substance, and sweet; to Mr. Noble for *Rhododendron Toccin*, bright rose, yellow blotch, fine truss; to Messrs. J. Laing & Co. for *Begonia Calypso*, rosy

salmon, double; to G. F. Wilson, Esq., for *Lilium Hansonii*, a grand plant with four spikes and upwards of forty beautiful massive flowers; and to Mr. Bull for *Dracæna Vivicans*. First-class certificates were also awarded to Mr. Charles Turner for the following Pelargoniums:—*Placida*, Jeanette, Bertie, Amethyst, and Insulaire; to Mr. Foster for Criterion, Marmion, Invincible, Symmetry, and Dauntless; to Dr. Denny for Manfred, Titania, and Sunbeam; and to Mr. Catlin for Fanny Catlin. Mr. Fisher, gardener to F. Williams, Esq., Woodlands, Balham, exhibited a plant of *Dendrobium Falconeri* containing 140 flowers, which was highly commended. Mr. Marcham's strain of striped Petunias had a similar mark of recognition, as also had Mr. Dean's double Canterbury Bells. Votes of thanks were awarded to Rev. A. Rawson, Bromley Common, for very fine blooms of *Cypripedium spectabile*; to Mr. Noble for Rose Queen of Bedders; and to Sir C. W. Trevelyan for Souvenir de la Malmaison Carnation. A first-class certificate was also granted to Messrs. E. & J. Perkins, Leamington, for *Potentilla Prince Arthur*.

NOTES AND GLEANINGS.

THE SUMMER hitherto has been one of the most dull and sunless that we have experienced. Nearly every day brings showers, and thunderstorms are prevalent. On Sunday the neighbourhood of London was visited by a heavy downpour which thoroughly saturated the ground in a few minutes, hailstones also being both large and numerous. The lowness of the temperature has retarded the growth of flowers and crops generally, one result of which is that the early Rose-show fixtures are fully too early. The low temperature has, however, probably been an advantage in another respect, for had the wet been accompanied by sultriness the Potato disease must have been serious, whereas at present it is only slight. Weeds are growing luxuriantly; slugs, where ducks and birds do not abound, are having a merry time of it, and gardeners are hardworked everywhere.

WE accidentally omitted to state in our report of the ROYAL BOTANIC SHOW of last week that the third prize in the amateurs' class for twelve Orchids fell to Mr. Heims, gardener to F. A. Philbrick, Esq., Q.C., Regent's Park; and an extra prize was awarded to Mr. Salter, gardener to W. Cobb, Esq., Silverdale Lodge, Sydenham, both showing excellent collections; while in the amateurs' class for six plants Mr. Salter was placed first for an exquisite collection, exhibiting *Odontoglossum vexillarium* with over forty flowers, *O. Alexandra* very fine indeed, *Oncidium crispum grandiflorum* with ten spikes, *Dendrobium suavisimum*, *Epidendrum vitellinum*, and *Cattleya Mossiae*. Mr. Heims was placed second, and Mr. Bates, gardener to W. H. Punchard, Esq., Poulett Lodge, Twickenham, third. Mr. Child was awarded an extra prize, all exhibiting superb collections. Floricultural certificates were also awarded to the Rev. A. Matthews, Gumley, Leicestershire, for Pelargoniums Douglas, Osman, and Henry; to Mr. C. Turner for Pelargoniums Illuminator and Criterion; to Mr. J. Levesley, Isleworth, for Pelargonium Rose Levesley; to Messrs. J. Laing & Co. for Begonias Baron Leguay and Piercei vitellina; to Mr. R. Parker for Iris Darius; to Mr. William Bull for *Gloxinias* Duc de Cazes and Mdle. Angelina Martin.

THE prominent and successful manner in which *LILIAM AURATUM* is cultivated at Duncevan has been frequently adverted to, and the noble clumps of that fine Lily as naturalised in the *Rhododendron* beds have been figured in this Journal. Besides that form of culture Mr. McIntosh has a large and choice collection of *Liliums* cultivated in pots, and to which a new house is devoted. Some of the plants are now flowering, others are fading, and many are just expanding. Very attractive are the different varieties of *L. umbellatum*—namely, *excelsum*, *grandiflorum*, *croceum*, and *venustum*. Extremely beautiful are *L. Washingtonianum*, 6 feet high; *L. pardalinum*, very fine; and more richly spotted *L. californicum*, very waxy; *L. parum*, six spikes, a grand mass of golden bells; *L. colchicum*; and still more massive *L. Hansonii*; *L. ligulatum*, orange; and the rich and chaste *L. philadelphicum*. *L. Bloomerianum* ocellatum is much spotted and marbled; and *L. Humboldtii*, 8 feet high with sixteen finely spotted flowers, is very fine. *L. Kramerii* is represented by two distinct and beautiful varieties. But perhaps the most striking is *L. purpureum*, the flowers of which, however, are now fading. The four spikes produced an aggregate of ninety-three charming flowers. All the choice kinds including *L. neigherrense* are also growing in the grounds amongst the *Rhododendrons*, and in a bed on the lawn *L. giganteum* has made remarkable growth, the stem at a foot from the ground being 7½ inches in circumference.

— FEW flowers, perhaps, give better returns to the hybridiser than GLOXINIAs. Two years ago Mr. Fisher, gardener to T. Williams, Esq., Woodlands, Nightingale Lane, Balham, had two plants. These plants by having been intercrossed produced a great number of varieties, several of them being of great excellence, so much so that three of them have been awarded first-class certificates at the Royal Horticultural and Royal Botanic Societies. Several of the flowers are quite 3 inches in diameter and are of great substance. They include both drooping and erect-flowering varieties, and are in almost every variety of colour usually seen in those flowers. Such results obtained in such a short time and from such limited means are well worthy of being recorded, as affording encouragement to others desirous of increasing their stocks of these beautiful flowers. A simple mode of Orchid culture adopted by Mr. Fisher will be noticed on a future occasion. We can only now say that the finest example of the beautiful *Dendrobium Falconeri* is now flowering at Woodlands that has come under our notice.

— AMONGST the FREE-FLOWERING DECORATIVE PELARGONIUMS exhibited at South Kensington on Whit-Monday by the growers of plants for Covent Garden Market the following are specially meritorious:—Duchess of Edinburgh, white, delicate pink blotch on upper petals, very dwarf and floriferous; Mirror, soft scarlet; F. A. Dickson, scarlet and maroon; Commander, cerise; Mabel, velvety maroon and salmon; and Mermerus, improved smooth brick-red with a maroon blotch, free and fine. The above fine market varieties were exhibited by Mr. Brown, Brentwood Nurseries, Hendon. Amongst the richly coloured and floriferous varieties of the "regal" type exhibited by Mr. Reeves, Dr. Masters, Captain Raikes, and Beauty of Oxford commanded much attention. All the varieties named are very valuable for general decorative purposes both for rooms and conservatories.

— FOREST SEEDS FROM CALIFORNIA.—The systematic efforts at forest planting that several foreign Governments have entered upon are the source of a new trade from America. An export of forest tree seeds from California has been established amounting to \$10,000 per year. The principal purchases are made for Germany, Austria, England, and the colonies in Australia and New Zealand; at present the demand exceeds the supply. The seeds of the Oregon Pine, known also as the Yellow Fir, are most sought; the timber of that tree is as good as British Oak for shipbuilding, and has been found sound after eighteen years' use for this purpose. The South Sea colonies are planting the California Redwood Tree extensively.

— TO DESTROY WORMS ON LAWNS.—Dissolve 1 oz. of corrosive sublimate in a pint of hot water, adding two large handfuls of salt. When dissolved add nine gallons of cold water, then water the lawn with a common garden watering can through a rose. Nine gallons will go over 800 square yards, and should be applied immediately after rain, when the worms come up near to the surface of the ground. The application will make the worms appear on the surface, when they can be picked up by hand or swept up with a broom, taken away, and destroyed, care being taken not to put them in the way of ducks or poultry. The lawn should be well rolled immediately after the operation. Lawns done over three times, from October to March, will have a beneficial effect in keeping the worms quiet during the summer season, when lawn tennis, croquet, and bowling are enjoyable.—C. C. (in the *Journal of Forestry*.)

— MR. T. W. HELLIWELL, of Brighouse, Yorkshire, has recently patented and introduced a NEW SYSTEM OF GLAZING AND SLATING ROOFS, which is certainly superior to anything of the kind we have seen before. For a glazed roof no skylight frames or putty is required, and lead flashings, gutters, &c., are almost dispensed with. Rows or squares of glass and slates can be used alternately, thus saving the extra expense in wood or lead for forming roof lights. For railway stations, greenhouses, and other similar buildings it is especially adapted. No woodwork or other perishable material is exposed on the outside, and consequently outside painting is not needed. There are no crevices for moisture to leak through or insects to lodge in, any required amount of ventilation can be obtained without extra cost, and the whole structure can be taken in pieces and removed with the utmost facility. There is no possibility of breakage—except from ordinary accidents or carelessness—play for expansion being allowed. Old greenhouses or skylights can be re-glazed on this principle without

the expense of new bars, and its adoption will result in all cases in a considerable and permanent increase of light. It has already been used with satisfaction by several leading architects and horticulturists, and will, in our opinion, supersede any other similar system before the public.—(*Building News*.)

THE USE OF SULPHUR.

GREAT care should be taken by authors in the use of words to convey their meaning, for disastrous results may sometimes follow by using the wrong word, or not sufficiently explaining it so that it may be understood as it is intended.

In a much-valued work on Grape culture under glass now lying before me directions are given for the use of sulphur as a remedy for red spider and mildew, using these words: "There need be no fear of sulphur doing harm to the foliage so long as ignition does not take place, it may be used with confidence;" and in another place these words are used—"Without being ignited." Also in another work it is recommended to scatter sulphur upon the brick flues, but care must be taken not to let it ignite. Now I do not believe there is any harm intended in the use of the word "ignite," but I have met intelligent people who have an idea that to ignite means to blaze; that sulphur or any other substance is not ignited when it comes in contact with fire unless it blazes. I will cite a case to the point:—A wealthy lady of this town sent her gardener to me last autumn to see if I knew of a remedy that would destroy red spider in the hot graperies. I gave him one in which sulphur was to be used, but cautioned him to use great care and not let it come in contact with fire under any circumstances whatever. I saw no more of him for nearly two weeks, when he came back with a very long face and said that he had done as I had advised him, but it had not destroyed the largest of the red spiders. His employer had been reading in a work on Grape culture that sulphur could be used as I have quoted above; so in order to finish up the business she ordered him to burn a very small quantity to try it, but he must be very careful not to let it ignite! Now you see she had been misled into this error by the use of that baneful word "ignite," and the consequence was the gas or fumes from the burning sulphur destroyed every leaf in both the hot and cold graperies, for she ordered him to treat both houses to this dose. A little while after this happened I went to see those graperies, and I must say that it was about the sorriest sight I ever beheld; every leaf was as brown as a piece of leather. The Grapes in the hot graperies had ripened off in very good order (quite a large number of bunches still hanging on the Vines) before the igniting process had been applied, and were not much injured, but those in the cold graperies had just begun to colour, and of course were completely ruined. It was a scene of desolation I do not wish to see very soon again.

There is another case of a neighbour whom I met on the street one day last autumn, and wished I would go with him and tell him what was the matter with his graperies. As soon as I entered the house I thought it looked as if sulphur had been burnt, and asked him if it was not so. He said he had only burnt about as much as would lay on a five-cent piece. He had heard someone say that it was a good plan to burn it, and did not suppose it would do any harm. He wanted to get rid of those white thrips that were tormenting him so much. I told him that a small quantity of burning sulphur was enough to destroy everything that was green in a house of that size, and if he had used the remedy I gave him in the early part of the season he would have been all right.—(*American Gardeners' Monthly*.)

THE MYSTERIOUS DISAPPEARANCE OF FRUIT.

THE experience of "KENTISH FRUIT-GROWER" and others, as recorded in the *Journal*, corresponds exactly with what has occurred here. The trees bore a most abundant crop of blossom; but notwithstanding that for ten years so fine a spring has not been experienced here, fruit crops, excepting Strawberries and Currants, are almost nil. This result has not been the work of either spring frosts or insects, for the season has been remarkable here for the almost entire absence of both. It is no doubt another striking illustration of the importance of well-ripened wood in autumn. Last summer here was remarkable for its rainfall (67 inches for the year), and absence of sun, and its effects are not confined to the disappearance of the blossom without leaving us any fruit, but are manifested in canker and gumming of the trees to a re-

markable extent. More Roses, too, have died than in any spring for ten years, however severe the frosts have been. Rhododendrons, which grow here so well, and I may say by scores of acres, are very thin of flowers, while owing to the genial May the leafage in the forests is remarkable for its health and extent.—D. THOMSON, *Drumlanrig*.

CAPE HEATHS.—No. 6.

JUNE.

CONTINUE to water carefully and regulate the growing plants. In the case of young plants the shoots must be judiciously stopped—that is, pinched out at the points in order to produce a greater quantity of growths, and thus lay the foundation of a robust and bushy specimen. Older specimens



Fig. 70.—*Erica speciosa*.

of the hardwooded kinds that are past blooming should have all the flowers pulled off, and most of the leading shoots stopped; whilst those of the softwooded section as they pass out of flower should be cut back hard, or they will grow tall and lanky and become bare of foliage at the bottom. The following kinds are now in full beauty, and it is very gratifying to see the fancy again coming round to these grand plants; indeed, the manner in which they have been brought out at the recent exhibitions would lead us to hope they, like the Auricula, will again be popular.

E. vestita incarnata.—An erect-growing plant with many simple branches. Leaves numerous, densely set, arranged in sixes or eights, linear, erect, slender, and deep green. Flowers arranged in whorls a little below the tops of the main branches; in shape cylindrical, upwards of an inch long; base of the tube white, suffused with deep rose towards the mouth.

E. vestita fulgida.—Similar in general habit to the preceding, but more robust and with stronger leaves, which are also more laxly set. Branches simple. Leaves in sixes, linear, obtuse,

deep green. Flowers in dense whorls, an inch long and deep reddish crimson in colour.

E. mundula (fig. 69).—An elegant neat-growing plant, dwarf and much branched. Branches slender. Leaves in fours, subulate, lax, and pale green. Flowers also in fours, erect and terminal, tubular, with a contracted mouth and spreading limb. Limb on the upper side bright red in the centre, bordered with white, beneath wholly bright red.

E. mirabilis.—Leaves arranged in fours, linear, obtuse, smooth, and dark green. Flowers terminal, in fours, sessile, much swollen at the base, contracted at the mouth and having a large spreading limb, the segments of which are somewhat heart-shaped. Colour white, suffused with flesh or rose.

E. speciosa (fig. 70).—A fine bold-growing plant, and although it must be acknowledged a rather shy bloomer, it nevertheless deserves space in every collection. Leaves arranged in threes, linear, obtuse, slightly hairy, and deep green. Flowers in threes, sometimes in fours, terminal on the small branches, tubular, upwards of an inch long, pendent upon coloured footstalks, shining and viscid, deep rich red in colour, tipped with green.

E. sulphurea.—This plant belongs to the softwooded section, and is very useful as a table plant independent of its attractions in the greenhouse. It is an erect-growing plant with numerous scattered branches. Leaves arranged in fours, linear, obtuse, hirsute, and dark green. Flowers terminal on the lateral branches and forming long spikes, in shape cylindrical, slightly recurved and hairy, smallest at the base, increasing upwards to the mouth; bright sulphur yellow in colour.

E. Irbyana (fig. 71).—A fine species, producing long slender branches. Leaves arranged in threes, subulate, mucronate, somewhat triangular, flat above and keeled below, deep green. Flowers nodding; footstalks red, produced in terminal umbels of six to ten, much swollen at the base, narrow at the mouth with a spreading limb. Colour pure white, tinged with rose or flesh towards the base, and very glutinous.

E. tricolor profusa.—A fine hybrid, originating in the nurseries of Messrs. Rollisson & Sons, Tooting, a firm that have done so much in raising new hybrid Heaths. It is of good compact habit and free-growing. Leaves mostly in fours, linear acuminate, and dark green. Flowers nearly terminal, produced in very large whorls, tubular, with a much-swollen base; colour rich rosy carmine, changing to pale rose; limb white, with a circle of bright green round the neck.

E. opulenta.—This belongs to the tricolor section, and is a very fine variety either for home decoration or exhibition purposes. Leaves dense, usually in sixes, obtuse, and dark green. Flowers large, tubular, swollen at the base; wholly a rich crimson lake; limb flat, tips white. It is another of the Messrs. Rollisson's grand hybrids.

E. campanulata.—A slender-growing but elegant species. Branches slender, leaves mostly in threes, subulate, smooth, light green. Flowers numerous, bell-shaped, drooping, bright yellow. Its free-flowering habit and distinct character should render this a favourite with every Heath-grower.

E. Hartnellii.—A fine old kind of great beauty now in full flower. Leaves dense, mostly in sixes, hairy, dark green. Flowers nearly terminal in large whorls, tubular in shape, pale red saving the neck, where it is encircled with a band of green.

FRUIT PROSPECTS.

WE had a splendid show of bloom on Apple, Plum, and Pear trees, and an entire absence of frost at that critical period. Plenty of fruit was set; but owing to the very wet and cold May, and apparently June also, the fruit has gone off very much. Our rainfall for May was over 4 inches, which, with scarcely any sun, has rendered the soil very cold. Apples and Pears are gone off more than Plums; they first turned yellow by degrees and then fell off, not gradual turning as we sometimes see, but the whole crop in some cases. Although the bloom looked well I do not believe it was ever very strong, for it could stand no rain, and I believe the wood of everything more or less was in a very unmaturing condition, owing to the absence of the solar influence last year. I do not think we shall get a good fruit year until we see the trees clothed with a better foliage than they have had for some

time past. Many trees this year, and young trees too, have many dead pieces in them, and the foliage looks yellow and puckered. Now, this is not the effect of frost this year, and no doubt we have often blamed frost undeservedly. Currants are a very good crop. Gooseberries thin. Strawberries a very heavy bloom, but much of it has turned black, and they evidently want sun. Raspberries are blooming very freely.

Of indoor crops, the crop of Peaches and Nectarines now ripening is very good; the later houses not so good, the wood not being so well ripened. The first Grapes are ripe and are the best crop, every successive house being worse in that respect—the first being a very good crop, the last a very middling one. It was very difficult to get late wood ripe last year. The Potatoes look very well here at present, but I am afraid this wet weather is not at all favourable to them as regards disease.—JOHN PLATT, *Gardens, Hillington, Norfolk.*

ROSE SHOW PROSPECTS.

Now, on June 10th, it is not impossible to make a forecast of the shows of the period. Now is the time of expectation. Many and many an intending Rose-shower walks now day by day through his Briars, or Manettis, or maiden blooms, or all three, and more if he is a leviathan, taking stock of their possibilities and disbudding as he passes them in review with just severity. Disbudding is a practice that deserves discussion. There is no doubt it makes the bloom larger, but at the cost, as I judge, of the character of the variety. I do it, like everyone else, but I have sometimes found a bloom quite as good which I had left in the bosom of his family. In some cases the attendant bud-lets keep quite small and appear to take very little of the sap away. I should like to see a class for which disbudding was interdicted. Certainly Noisettes and Roses of a cluster character lose through the practice a certain portion of their beauty. But this is a digression. The intelligent individual I contemplate does more than disbud; no doubt he has been mulching, according to the most valuable suggestions of "THE HEREFORDSHIRE INCUMBENT" in his article in our Journal of May 30th. "Agitate! agitate! agitate!" was the old Corn Law Reform recipe. "Mulch! mulch! mulch!" is, I believe, Mr. George Paul's advice as a preparation for the heats of summer. I have never before put on the summer coating of manure so early, but am now thankful for the advice to do it, and rejoicing greatly in the way in which the late rains have made use of it.

Judging from the state of things in Mid-Surrey I should this year expect there to be very first-rate Rose shows. I incline to think Roses so far have seldom had so propitious a season, at least on light soils, for I have little experience of the stiff clays. There hardly ever were such crops of grass as I see this year—heavy mowings, as a veteran of the scythe has just remarked to me; and where the Rose bushes have pushed three or four large buds clear of caterpillars, and with clean and well-washed foliage, I cannot but anticipate, when the warm weather at last comes, an excellent tribute being laid at the feet of our Lady Flora. In these parts, however, there are a great many faulty blooms: they come cracked, and of a type which hardly ever opens perfectly. Where I know not exactly, but about the middle of May a frost came which has marked with blotches some of the faster-growing foliage, and which appears also to have damaged some blossoms. A far more serious thing here is a very general want of Apples. After a fair amount of blossom the quantity of the fruit hereabouts appearing is most discouraging. There is always something, and there is always something to make up for it; and a very large balance—(who does not thankfully admit it?)—there always is on the side of "things richly given to us to enjoy."—A. C.

LARGE CYATHEA MEDULLARIS—DAHLIA CULTURE.

WHEN staying during the Manchester Show with my friend Mr. Tinsley, at Grappenhall Lodge, he was kind enough to drive me over to Tatton Park, the seat of Lord Egerton of Tatton, near Knutsford. There was not much very noteworthy about the place save the park itself, which is very extensive but flat. There is, however, in the fernery what I imagine to be one of the finest specimens of *Cyathea medullaris* in England, at any rate in any private collection. Its stem is 18 feet high, and the fronds are 16 feet long, so that it has a very grand appearance, the fronds being in perfect health.

I noticed also in the garden a way of treating bedding Dahlias I had not seen before. The top is pinched out, and the plants are then pegged down, and thus are kept very dwarf and show a good head of bloom. There was also in the kitchen garden one of the most extraordinary visitations of American blight I have ever seen—a whole row of dwarf Apples completely smothered with it; and as nothing seems to be done to overcome it, not only must the trees ultimately perish, but the whole garden must be poisoned with it.

I saw in Mr. Tinsley's garden, who is by-the-by one of the most energetic of the local Secretaries of our National Rose Society, a mode of treatment of Clematis Jackmanii which I had not seen before, and which is well deserving of imitation. A border was made of about the same width as the Ivy borders one sees so much of in Paris, and the plants being kept within



Fig. 71.—*Erica Irbyana* (see page 466).

bounds it looked very neat, and gave, moreover, a succession of bloom all through the summer months. I have seen it used for a bed before, but never as a border.—D., *Deal.*

BATH AND WEST OF ENGLAND SOCIETY AT OXFORD—SUPPLEMENTARY NOTE.

AMONG the contributions to the Exhibition not staged till the second day a collection of Orchids, some thirty in number, from W. E. Brymer, Esq., Ilslington House, Dorchester, are worthy of especial notice for the healthy condition, abundance of really fine flowers, and unblemished state in which they were shown, for they were as fresh-looking as if they had only been brought a distance of a few yards from the Orchid house to the tent, and yet they were sent off from Ilslington to Oxford, a journey of some 120 miles, early on Whit-Monday, and were not received at the tent till the evening of that day. We saw them unpacked, and noticed that each flower spike was fastened securely to a single stake, and effectually screened from contact with cold currents of air by an envelope of wadding and paper kept well away from the flowers by four stakes, around which it was wrapped and made fast above and below the flowers—a simple process thoroughly well done. In a good room or well-constructed tent no harm can

happen to Orchids under ordinary circumstances at this season of the year, and we have no doubt the forlorn bruised condition which they so frequently present when taken back from an exhibition is more often owing to unskilful packing than to the atmosphere of the place in which they are shown. After the Orchids were staged there were frequent storms of wind accompanied by heavy rain; but so admirably was the tent constructed that not a drop of moisture or any sharp current of air came near them, immunity from the latter evil being secured by making a couple of curved recesses in the stage at the centre and well away from the doors. Some of Mr. Brymer's Orchids were very fine, notably *Masdevallia Harryana*, which had numerous rich crimson flowers; *M. Veitchiana*, with about a dozen brilliant orange-scarlet flowers streaked and tinged so exquisitely with purple as to baffle description; *Epidendrum vitellinum*, with five spikes of its deep orange-scarlet flowers; *Odontoglossum Pescatorei*, with a grand spike; *Oncidium hastatum*, also very fine; *Epidendrum prismatocarpum*, a grand plant with eight spikes; *Brassia maculata* and *Cattleya Mossiae*, both very beautiful. The entire collection reflected much credit upon Mr. Catt the gardener.

On the second day some stands of Roses contributed by J. H. Arkwright, Esq., Hampton Court, Leominster, Mr. Mayo, and Mr. Prince, added materially to the beauty of the Show. A specimen plant of *Mignonette* brought by Mr. Boscawen from Lamorran is also worthy of mention; for although the only example of our old favourite there it was quite worthy to stand alone, being a large, handsome, well-grown plant, all the more remarkable from the fact of its being raised from a cutting.

Reference has already been made to the collection of native wild flowers exhibited by the Rev. W. Tuckwell, but it was worthy of more than a passing notice. It consisted of some seventy species and varieties, not shown in large hideous bundles as is often done, but with just a small spray or two of each sufficient to convey a clear idea of foliage and flower; each kind inserted in a little tube fastened in rows upon a neat rack, with a card beside it so clear and to the point that we print an example. Many of these wild flowers were so beautiful as to merit a place in perennial clumps as well as being turned to account to make gay the margins of woodland walks. Of such we selected a Dropwort (*Spiræa filipendula*) with elegant Fern-like foliage, and pretty pale lemon-coloured flowers tinged with pink, and with round clustering flower buds of a deep pink with slight indications of the interior lemon colour; *Alchemilla vulgaris* or Lady's Mantle, worthy of a place for its handsome foliage; the Pheasant's-eye (*Adonis vernalis*), with elegant finely divided foliage and pretty little deep crimson flowers; *Hyoscyamus niger*, the curiously veined-flowered Henbane; *Campanula glomerata*, the Clustered Campanula, of a lively pleasing purple shade of colour; Jacob's Ladder, the *Polemonium ceruleum* of our flower borders, alike ornamental in leaf and blossom; the large Hawkweed (*Hieracium aurantiacum*), bearing numerous compact clusters of deep orange flowers; *Centranthus ruber*, the Red Valerian, so pretty at this season of the year with its clustering spikes of bright rosy pink flowers; *Viburnum Opulus*, the wild Guelder Rose, worthy of a place in every shrubbery not only for its white flowers now but for its charming clusters of polished berries, some being bright crimson in colour and others almost black; *Mimulus luteus*, with pretty yellow flowers—it answers well in a poor soil, and will flourish wonderfully in a shallow stream. We have a large patch of it planted originally on the bank of such a stream, and it has crept down into the water and along the channel for some yards, throwing up shoots from 1 to 2 feet in height. *Salvia pratensis*, or Meadow Clary, a pretty flower with tall spikes of light purple; *Epilobium hirsutum*, the Great Willow-herb, a striking plant with tall spikes of large deep pink flowers; *Astrantia major*, with curious pale pink flowers; and that other pink flower of cottage gardens, the Thrift (*Armeria vulgaris*). The Sweet Flag (*Iris Pseud-acorus*), well known and valued for its beauty by the side of water; *Lychnis vespertina*, better known perhaps as White Campion, a handsome bold white flower; the Sun Cistus (*Helianthemum vulgare*), deep yellow, and of which we now have so many charming varieties. And of the *Geraniums*, sanguineum, or Blood-red Cranesbill, valuable for its foliage as well as for its deep pink flowers; *G. sylvaticum*, having deep rosy purple flowers of good form; *G. pratense*, with white flowers and handsome foliage; *G. lucidum*, a charming miniature pink variety.

ARRANGING A CEMETERY.

THE laying-out and general treatment should be as for a gentleman's ground or park; still the cemetery may and must have a character of its own, not forced, or artificial, or severe, but natural and graceful. This character can be expressed in

no way so well as by judicious planting. The selection of trees for a rural cemetery calls for the exercise of taste on the part of those to whom the work is committed. The evergreens, especially those of a slender form like the *Arbor-Vitæ* and *Junipers* and the English Yew, are particularly appropriate, but even these should not be used so freely as to give a gloomy appearance to the landscape. The weeping trees are always acceptable. In addition to these two classes any of our native or foreign ornamental trees may be introduced. Avoid too profuse planting. Every tree should have room for its full development, and no pruning knife should be allowed to touch an ornamental tree. Its beauty consists in the form given it by the Creator, a beauty which all can admire, which we can also mar but cannot mend. Trees are to ornament the grounds, and too much planting produces the same unpleasant feeling that always results from profuse ornamentation, whether upon the person, the house, or the grounds.

The flowering shrubs—the *Lilacs*, the *Syringas*, and *Weigelas*—need not be neglected, but should not be scattered over the grounds promiscuously, as they give it a broken and untidy appearance. Plant them in groups in appropriate places, and so close together that the group and not the single plant is daggered upon the eye. A beautiful group may be formed of the most ordinary shrubs, that, if planted singly, would rather disfigure than beautify the grounds.

When such cemeteries are common, and our friends ask us what they had better plant in their little burial lots, the answer will be easy—a few groups of simple sweet flowers, such as the *Lily of the Valley*, the *Snowdrop*, the *Forget-me-not*, the *Daisy*, the *Violet*, with clumps of a few *Roses*, white *Lilies*, and the *Dicentra*, *Anemone japonica alba*, and plants of a similar character that will look well and do well. A few *Crocuses* and *Snowdrops* planted in the grass will make a very pretty appearance in the early spring.—(*Vick's Magazine*.)

Class I.
DICOTYLEDONS.
Dir., CALYCIFLORÆ.
Ord., Rosaceæ.
Genus, Potentilla.
Species, Fruticosa.
Var.,
Shrubby Potentilla.

NOTES ON VILLA AND SUBURBAN GARDENING.

WE never remember a season which has brought us the same amount of work as the present one has, and every effort has had to be made to keep pace with the necessary requirements of the garden. Seedling weeds have grown very quickly, and have had to be either pulled up with the hand or first cut down with a hoe and promptly raked off the ground, or they would have quickly taken root again and our labour would have been thrown away. Lawns have required more than usual attention to keep them short and in good trim, and the verges have required extra clipping to impart to them anything like a finished condition. But, on the other hand, we have had much to be thankful for; the frequent heavy rains have been highly beneficial in maintaining a beautiful green surface to our lawns, and the trees and shrubs have made unusually luxuriant foliage, which at the present time is remarkably beautiful, while to all late-planted shrubs and newly laid out villa gardens there has been a great saving of labour, the turf having taken well hold in its new situation, and the shrubs in many cases have rooted so well that a season's growth will be gained. Notwithstanding such genial and showery weather conducive to healthy growth and good foliage, Roses on walls are in many instances much infested with aphides. Hard washings from a garden engine must be applied to them as long as there are any fly to be seen, or it will be useless to expect a good second growth and a further supply of flowers as the season advances. Standard *Roses* and others growing in beds or borders also require timely attention to eradicate these insects. Many *Roses* are now showing well-formed flower buds, and such that well repay the cultivator for the labour bestowed on them in keeping them clean. Regulate the growths of *Clematises* on walls, or they soon become a tangled mass.

In the flower garden the bedding-out of the summer plants ought now to be finally completed, but where spring bedding is carried out extensively it frequently happens that some of the spring flowers are in their full beauty in early June. *Silene pendula*, for instance, is one of those backward spring bedders, but how exquisitely beautiful is a large bed of the pink variety when well filled and fully in bloom! We have had beds of this now gay for some weeks—so gay that no summer bedding plant can approach it; but these are now fast fading, and *Coleus* and such-like tender plants will be planted in their places. *Silene pendula compacta* we strongly recommend either for edgings of large beds or for the filling of smaller beds, and those who do not object to bedding-out late should raise a supply of these gay *Silenes*. Instructions for doing so will be found on page 442. Embrace every favourable opportunity for running the hoe through the beds that have now been recently planted. This is highly beneficial, both by killing seedling weeds and loosening the soil around the plants and admitting the air to the roots. At present around the neighbourhood of London artificial watering

is not necessary, copious rains having fallen from the clouds. Peg down and regulate the growths of Petunias, Verbenas, Heliotropes, and such-like trailing plants. Box edgings to flower gardens not already clipped should be cut at once.

In the kitchen garden there is now much work to be done, for neglect now of only a week may be the loss of a crop and entail much vexation and disappointment at the end of the season. If Parsnips and Onions are not finally thinned not a day must be lost in completing the work. Thin Parsnips to a foot apart and Onions to 9 inches if large-sized produce is required, but a distance of 6 inches will enable some fair-sized bulbs being produced. Prick the thinnings of Onions out in a spare piece of ground, and these will afford a supply for pickling purposes. Carrots must also be thinned, but sometimes it is well to thin sparingly and draw the others as they are wanted for cooking, but by no means allow them to become matted in the rows. Beetroot is of sufficient height to be thinned, and if there are blanks in the rows transplant some of the young plants, which will by the end of the season make very fair-sized roots; large Beetroots are not generally wished for.

As soon as all the early Peas have been gathered pull up the rows and crop the ground again, for in very few gardens is there any chance allowed for the ground to remain long unoccupied. Celery is a good crop to follow Peas. Prepare the trenches by digging them out 18 inches wide and the same in depth, placing several inches of well-decayed manure in the bottom, and as soon as the plants are strong enough carefully lift them with a trowel and plant them in these prepared trenches. A sharp look-out for slugs must be made on the rows of Scarlet Runners and Dwarf Kidney Beans or they will very soon devour the lot. A row of fresh-slacked lime placed around the plants will sometimes preserve them, but trapping and catching the slugs is a safe cure. Make further sowings if sufficient plants are not growing. Earth-up the latest crops of Potatoes before they become too far advanced, and thin the second and third sowings of Turnips before they have become too crowded. Make further small sowings of Lettuce, Endive, Radishes, Carrots, Parsley, Chervil, and small salads. A very good plan with Lettuce is at this season of the year to sow in drills a foot apart where the plants can be left to attain their full size, and plant the subsequent thinnings out for successional supplies. To obtain good crisp Lettuce a rich border and a plentiful supply of water is requisite. The Paris White Cos is one of the best varieties for producing a supply throughout the summer. Cauliflowers are now fast turning in. Make a further sowing of Walcheren at once for a late autumn supply. Plant out Brussels Sprouts; the main crop of this useful esculent can scarcely be planted out too early.

Chrysanthemums should no longer be left in their small pots, but must be placed in their blooming pots at once. For producing large flowers we place one plant in an 8 or 9-inch pot, but specimen plants should be potted in 12-inch pots. Stake the plants as soon as they are potted to prevent the wind snapping the tops off. We pot firmly, using good loam mixed with a small portion of decayed manure.

WORK FOR THE WEEK.

KITCHEN GARDEN.

THERE must be no delay in thinning the root crops, for when this is neglected they become drawn and are more susceptible of injury from drought. It is desirable to apply a dressing of soot immediately after thinning, which will tend to keep off insects and be beneficial to the plants. Guano applied at the rate of 2 lbs. per rod (80½ square yards) is an excellent dressing. Endive should now be sown for the first main crop in drills 15 inches apart, and the plants thinned to 12 to 15 inches. This is better than transplanting, which often causes the plants to run, and makes much needless work for the watering pot. Round-leaved Batavian and Green-curbed are the best sorts. The London or Rosette Colewort is not so much grown as it deserves. Its productiveness, adaptability for withstanding severe frost, and requiring little room render it desirable. Sow the seed now, and when the plants are fit to transplant do so, allowing 15 inches every way. Ground that has been occupied with Potatoes, Peas, or autumn-sown Onions will be available for this crop. Finish the cutting of Asparagus, for it is necessary that the plants should have time to make and mature a good growth, upon which depends the development of the buds for the ensuing season's supply. In exposed situations secure the top from being broken off at the ground by stakes, and run string from one to the other. Keep Tomatoes well supplied with water and well mulched with short manure, remove all side shoots when the required number of fruiting shoots is obtained, stop one joint beyond the truss when the flowers open, but if the plants show fruit plentifully little stopping is required.

FRUIT HOUSES.

Pines.—Fire heat will not be necessary now for successional stock, except in particularly cold localities, for sufficient heat will be maintained to secure the steady growth of the plants, or a temperature of 65° at night, if attention be given to ventilation in the day time, which is very necessary to secure sturdy growth.

Admit air at 75° if the morning be bright, gradually increase it until the temperature reaches 85°, when full ventilation will be required. Reduce the ventilation gradually, keeping it up to 80° as long as possible, at which close, affording the plants a light sprinkling overhead when the weather is bright. It will still be necessary to afford the needful warmth to the roots of the plants—viz., 80° to 90°, and to accelerate plants in an advanced fruiting state in houses, the bottom heat of which is furnished by hot-water pipes. The earliest fruiting plants will now or soon furnish a number of suckers, which should be taken off and started at once. These will form a supplementary batch to those started in March. They must be watered at once if the soil is dry, and shade afforded from bright sun until they are well rooted.

Melons.—Outdoor fruit not being equal to expectation make good the deficiency as far as possible by making every empty house, pit, or frame available for Melons. Some consider Melons are worth little after the hot days of summer, but they are often good when the days are bright in September and October. Plants that were raised some time ago as advised will have been put out, or should be at once; they will set freely in the dog days and afford very acceptable fruit in late August and September. A last sowing should be made for growing in dung-heated pits and frames. It is advisable to make up the beds at once, or at the same time as the seed is sown, which should be in 4-inch pots about half filled with soil, placing in a frame or house at work. One or two seeds may be put in each pot, and soil placed around the stem as the plants advance, but not higher than half an inch of the seed leaves. When the fruiting bed is ready turn the plants out of the pots, place one in the centre of each light, planting to within half an inch of the seed leaves, with the soil inclining from the stem, give a good watering, and shade from bright sun. Pinch out the point of the leader at the second rough leaf, which will induce side shoots; reduce these to four, take two to the front and two to the back of the frame or pit, rubbing off the laterals to within 9 inches of the stem all around, and every other lateral upon the primary shoots, stopping those at 6 inches from the sides of the frames. The plants will be showing and setting fruit in plenty early in August, and they will ripen in late September. All the stopping and disbudding must be done whilst the growths are small, for large reductions of growth only tend to grossness in the parts retained, and are unfavourable to the setting of the crop. Little Heath is one of the best for late work, and has the advantage of keeping well; Colston Bassett is more highly flavoured than many late in the season. The grower who has well-heated light houses will have no difficulty in maintaining a supply of fairly flavoured fruit through October and November from sowings up to the third or fourth week in July. Husband sun heat by early closing in pits and frames; only a slight shade in the middle of the day in the hottest weather will be needed, and not that if the soil be firm and stiff and the plants duly supplied with water.

FLOWER GARDEN.

Push on the propagation of spring-flowering plants. Primroses ought to have been attended to; if not, divide them into as many parts as there are crowns with roots. Daisies should have a shaded position in the reserve garden, or an east and west border, duly shading and watering until established. Arabis, Aubrietias, and Myosotis (Forget-me-nots), do best upon a north border; the cuttings should have a fair amount of stem, and be kept moist and shaded if the sun reach them. Viola and Pansy cuttings insert in a shady border, selecting those springing from the roots; shade from bright sun and keep moist. Golden Thyme strikes freely under handlights on a north border. Stachys lanata is useful for winter bedding, and should be divided and planted in a shady place. Gentiana acaulis is one of the most beautiful plants for spring blooming. The plants should be divided and grown in a slightly shaded situation and kept moist. Sow now Wallflowers for blooming next spring, and any other biennial or perennial plants, also Stocks of the Brompton, Giant, and Queen varieties for next season's display.

Favoured by the late rains bedding plants have progressed favourably and will soon cover the beds. Remove all blooms as they show, which will cause the plants to cover the ground much sooner than if they were allowed to flower at this early stage. Attend to Verbenas and other plants that require pegging. If the soil be light and shallow mulch with old Mushroom-bed manure or other spent material not too rich, as that would tend to growth instead of flowers. Mulching is of great benefit in light soils in a dry season, the plants are then almost independent of the watering pot. Cocoa-nut fibre refuse is a good mulching material and has a very neat appearance. Frequent mowings are necessary to keep lawns in order. This season they could not be kept at all down without a run over once a week: the hard and close cutting tells upon the grass in time, and should be relaxed whenever a dry period occurs, setting the cutters a little higher so as not to cut too close. Bents which usually escape the machine and are a great disfigurement, are readily cut with the scythe. Walks should be frequently rolled to keep them smooth and firm. Salt now given will destroy moss and small weeds, but it should be applied in settled weather, as heavy rain will prevent its destroying the weeds. Care should be taken not to sow it too

close to the grass or Box, as it will spread and injure those or other live edgings. Box is easily killed, and in such cases it is best to avoid the salt.

Rhododendrons and other American plants do not thrive well in some soils, especially those loose and dry. A dressing of decayed cow dung or leaf soil will be found beneficial, and failing these a mulch of cocoa-nut fibre refuse or grass mowings will conduce to a moister soil and enrich it, which will be seen in the increased vigour of the plants. Any shrubs or trees not in a thriving state may have a mulch of similar material, it being a great mistake to remove the leaves and not return anything in their place.

PLANT HOUSES.

Stove.—Gardenias out of flower should be cut back, but young plants are preferable. They are so liable to mealy bug and scale that every opportunity should be taken to keep the pests in check. A thorough cleansing may be given at the time of cutting back, as the plants will then endure an insecticide at a strength that at other times is often injurious. Lay the plants on their sides and syringe with paraffin, a wineglassful to four gallons of water, keeping thoroughly mixed by squirting alternately into the liquid and over the plants, or 6 ozs. of soft soap to a gallon of water, adding a wineglassful of spirits of turpentine to every three gallons; apply as in the case of the paraffin, but keep both from the roots of the plants. The paraffin is the most effectual remedy and is not so expensive. When the plants have shoots about an inch long shift them into pots about 2 inches larger, reduce the balls about half, preserving the roots, and work the soil well in. *Gardenia florida* and *G. Fortunei* have the largest flowers, *G. intermedia* is the most useful for cutting, besides being a plant of a more accommodating size. *G. radicans* major is also desirable for its late-flowering properties. *G. citriodora* has blooms like Orange blossom; it is only a moderate grower, and should not be cut back, or very little. It requires care in potting, not disturbing the roots more than can be helped in removing the old soil. Flowers of this genus may be had throughout the year with these. Turfy loam with a little leaf soil or well decayed manure grows Gardenias well. Some growers prefer a mixture of peat and loam, but we have not seen the advantage.

Euphorbia splendens has gone out of date. No better plant for button holes has taken its place. It flowers continuously in a growing temperature, and is very durable. Being very bright in colour it is very useful for mixing with light-coloured flowers. No plant is of easier culture. It continues to flower whilst growth is being made. Afford plenty of light. Young plants potted and grown-on soon become useful. Only moderate pot room is required, good drainage being essential, and turfy loam with a little well-decayed manure and a fifth of sand and pieces of charcoal to keep the soil open. *Stephanotis* trained to the roof and done flowering should be cut back and have the old wood cut out. This will need to be regulated by the condition of the plants as to vigour, but whatever pruning is done it should be before the plants start into growth. It is important that the shoots be trained close to the glass beneath an unshaded roof, so that the growth be well ripened as it advances, for which no after-drying and parching can compensate. Those that are trained to trellises should have the shoots placed upon strings close to the glass in the full light, and only secured to the trellises to flower. Take care not to overcrowd, and keep clear of insects, especially mealy bug and scale, applying the remedy as stated for Gardenias.

Clerodendron fragrans started early will now or soon be out of bloom. It should be cut back to two or three joints below the flower spikes and placed in heat; it will soon break, and then should be fed with liquid manure. Keep free of red spider and mealy bug, the former by syringing on the under side of the leaves. *C. fallax* and *Kempferi* treated in a similar manner will afford a second crop of flowers.

Hibiscuses have gorgeous flowers. The plants should have encouragement, giving them light airy situations and keeping well supplied with water. They continue growing and flowering for a lengthened period. Turfy loam with a little leaf soil suits them well. Early-started plants of *Rondeletia speciosa* major will be in flower, and should be well supplied with water and kept free of insects, particularly thrips, to which they are liable, which is best done by fumigation or syringing well on the under side of the leaves. Remove the trusses of bloom as they fade to the leaves immediately beneath them and they will break and flower again soon, but if the shoots are cut back they will not do so. *Impatiens Jerdonis* is a useful decorative plant of small growth not often seen now-a-days. The plants should be grown near the glass, and must not be overpotted nor be kept too wet—indeed, they require to be kept rather drier than the majority of stove plants. When showing for flower water them occasionally with weak liquid manure. It does well in turfy loam with a little leaf soil and a free admixture of sand with thorough drainage. *Torenia asiatica* is a good plant for growing in pots to stand upon brackets or baskets; it is also very desirable for mixing with other plants in stands. Cuttings inserted now will flower in late summer and keep on for a long time.

Pot batches of *Achimenes* for late blooms. One of the best for late work is *A. ignea*, the flowers being very bright fiery

scarlet; sprays of it lighten up the dullness of autumn flowers immensely. Roof climbers must be frequently gone over, thinning and regulating the shoots, keeping them rather thin so as to permit the wood to get well ripened and induce a free-flowering habit. *Passifloras* should not be tied-in too closely, but the flowering shoots should be allowed to depend, in which way they have a much finer appearance.

Conservatory.—Flowering plants being less plentiful than at an earlier period the introduction of fine-foliage plants backed by flowering plants from the stove will allow a very effective display to be maintained. *Allamandas*, *Ixoras*, *Stephanotis*, *Bougainvilleas*, and *Clerodendrons* will endure a short sojourn in the conservatory without experiencing any injurious effect if kept for a time rather drier, cooler, and fully exposed to light prior to removal; but if brought from a hot moist stove without any preparatory treatment the plants will not endure as many days as they would weeks with proper treatment. Some of the higher-coloured *Dracenas*, *Crotons*, &c., are very effective; with *Coleus* they will be heightened in effect by well-grown plants of white-leaved *Centaureas*. Flowering plants, as *Fuchsias*, *Petunias*, *Liliums auratum* and *longiflorum*, *Plumbago capensis*, *Neriums*, *Zonal Pelargoniums*, *Campanula pyramidalis*, and *Humes elegans*; *Balsams*, *Cockscombs*, *Globe Amaranths*, *Hydrangeas*, *Achimenes*, *Gloxinias*; tuberous and other *Begonias*, as *fuchsioides*, *insignis*, *weltoniensis*, *Digswelliana*, *Dregei*, *Saundersiana*, *Ingrami*, *hybrida multiflora*, and others, tastefully arranged with the foliage plants will make a display little inferior to that produced earlier by more profuse-flowering plants. Climbers must be frequently gone over. The shoots of the *Passifloras* should be allowed to hang down. *Tacsonias* likewise roam at will, and they will not only look much better but flower very much more freely. Copious supplies of water and liquid manure, with thinning-out where too crowded and removing irregularities, is all that is needed. *Roses* of the *Maréchal Niel* type should have the old weak growths cut out, and every encouragement given to the young strong growths, which, if well ripened, will flower from nearly every bud. *Habrothamnus* should have the wood well thinned out, training so that the shoots can have plenty of light, and they will bloom grandly in due season. Tree Ferns can hardly have too much water, the stems should be well watered twice a day. Other kinds of Ferns should be well supplied with water and be moderately syringed. Plants liable to red spider, as *Mandevilla*, *Brugmansia*, &c., should be well syringed, applying the water with force so as to dislodge the insects, watering copiously at the roots and occasionally with liquid manure. *Neriums* must be well supplied with water; liquid manure will assist the buds in swelling, and the removal of the side shoots emanating from the base of the flower scape will materially help the swelling of the flowers.

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editors," or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

ADDRESS (*A Lover of Rose Shows*).—H. Neville, Esq., Chislehurst, is the Secretary of the West Kent Horticultural Society. We cannot find the query about manures.

PEAS SOAKED IN PARAFFIN (*Kittie*).—Soaking them for twenty-four hours would cause the defect you mention.

PRIZE FOR GREENHOUSE PLANTS (*Ipawitch*).—Stove plants cannot be exhibited for the prize. *Cissus discolor* is a stove plant.

BULB GROWERS (*Cymro*).—Ant. Roosen & Son, Overveen, Haarlem, Holland.

PLANTING ASPARAGUS (*T. Byrne*).—It is now too late to plant out Asparagus.

EUCALYPTUS GLOBULUS (*F. W.*).—This is hardy only in favourable situations as in Devon, Cornwall, the Isle of Wight, or the valley of the Thames. It will succeed in any good garden soil.

ERROR IN PRINTING (*A Correspondent*).—The error in our contemporary is amusing, but is not quite so extraordinary as one in which "simple plants" was printed instead of "small-pox."

FELLING CEDARS (*J. W. M.*).—The autumn is the time for felling. Cabinet makers are purchasers.

STRIPED AURICULAS (*A Northern Grower*).—A great many wonderful things were said to exist in former days, but in many cases they only did so in the imaginations of the writers. I have never seen anything like an approach to striped Auriculas. Double striped ones are equally unknown to me.—D., Deal.

ROSE BUDS DEFORMED (*R. Baxter*).—Defective root-action is the cause. More manure and a regular supply of water would probably prevent the deformity.

GERANIUM SEEDLINGS (*H. Tong*).—They are pretty, but not equal to many well known. Show them to some nurseryman.

CUCUMBER FOR EXHIBITION (*A Novice*).—Tender and True.

ROSE FOR A WALL (*M. B.*).—As you want a crimson Rose we advise you to plant Duke of Edinburgh.

SIZE OF PANSIES (*Old Subscriber*).—Show Pansies are seldom grown so large as 2½ inches in diameter. Some of the Fancy sorts are as large as this, but we consider 2 inches large for show varieties.

STRAWBERRIES NOT FRUITING (*Fulwood*).—If good plants were put out early last August they ought to bear some fruit now. It would all depend upon the treatment they receive. Some growers treat the Strawberry as an annual. The plants are put out in July or August, and they bear a very heavy crop the following season. If good-sized plants do not bear fruit it is best to root them out as cumberers of the ground.

FUNGUS ON ROSES (*P. B. W. L.*).—Your Rose tree is much infested with the black fungus, which may be checked by syringing the foliage with a solution of soft soap of a strength of 3 ozs. to the gallon of water, and afterwards dusting the parts affected with flowers of sulphur. In the winter prune your plant rather severely, cutting out the parts affected, and enrich the soil by applications of manure; apply also liquid manure copiously during the growing season.

MEALY BUG ON STEPHANOTIS (*R. H. Kay*).—Dissolve 2 or 3 ozs. of soft soap in a gallon of water, and with this sponge the leaves and every portion of the plant well, and afterwards syringe copiously and persistently with pure water. You will find other and excellent modes of destroying this and other insects in the present issue "Work for the Week" in another column.

CUCUMBERS FOR SEED (*W. S.*).—It is impossible to say how many fruits are required to produce an ounce of seed. We have at one time secured that quantity from half a dozen fruits, and at another not had half the quantity of seed from half a hundred fruits.

PACKING ROSES FOR EXPORTATION (*H. B.*).—For a voyage of only a fortnight no extraordinary precautions are requisite. Small plants established in pots might be packed with the pots in a hamper in the ordinary fashion, and larger plants should have the roots well enveloped in damp moss and the shoots tied securely together, and due care taken to prevent breakage. Early in November would be the best time.

SELECT FUCHSIAS (*J. S.*).—The following, in addition to those in your possession, are worthy of cultivation, and are inexpensive.—*Light*: Guiding Star, Venus de Medic, Minnie Banks, Mrs. J. Lye, Marginata, and Lady Heytesbury. *Darks*: Model, Noblesse, Killiecrankie, Knoch Arden, Victor Emmanuel, and Rhoderic Dhu. Your suggestion shall have our attention.

VINE UNHEALTHY (*R. Pine Lodge*).—From the description you give of the Black Hamburg Vine we consider its recovery extremely doubtful. We should dig it up at once and plant forthwith a healthy young Vine, which you can obtain in a growing state in a pot from a nursery not far distant from you. Give it some fresh soil, plant it carefully, not greatly disturbing the roots, water it with tepid water, and syringe occasionally, shading for a few days to prevent the foliage flagging. With good attention it will reach the top of the house this summer, and may bear a few bunches next year.

BAST MAT (*Vicar*).—The strictly correct mode of spelling the word is *bæst*, the Anglo-Saxon name of the inner bark of a tree.

PERIS TRICOLOR CULTURE (*Mr. Hamilton*).—Give this delicate Fern a lively stove temperature, avoid overpotting, using small pots with ample drainage, and afford it an open yet shaded nook by itself, and then by due attention to watering and cleanliness you will succeed. All the Pellaeas, or rather Platylomas, answer well in a greenhouse.

SOIL FOR GENTIANA ACALUIS (*Amateur*).—No difficulty should be found in inducing this old favourite to grow and flower freely in any tolerably rich garden soil. It answers best in deep rich loam, but we have numerous large patches of it growing freely in a somewhat thin light soil. Plant carefully, water till established in the soil, and then leave them alone, but do not expect an abundant crop of flowers till they have been established for two or three years. Make cuttings of your double Petunias forthwith, and you will have good plants for winter blooming, bearing much finer flowers than old cut-back plants would do.

PLANTS FOR CARPET BEDDING (*Caroline*).—*Grey and White*: Leucophytum Brownell, Santolina Incana, and Sedum glaucum. These are all grown solely for the beauty of foliage, and by their neat compact growth are well suited for such beds as yours. *Yellows*: Mesembryanthemum cordifolium variegatum, Sedum acre elegans, Coprosma Baueriana variegata. The first two are easily grown from cuttings, but the last is somewhat more difficult. All are established favourites of proved merit. *Crimsons*: Coleus Verschaffelti and C. Verschaffelti splendens; the first dark, and the last light crimson. *Greens*: Cerastium arvense, of very neat growth and a bright green hue; and Mentha Omen, a pretty variety of the old blue type. *Blues*: We have no substitute for the blue Lobelia, but if you have only tried speciosa you may like pumila grandiflora growing in the form of dense globular cushions. The Alternantheras are all pretty, A. amena and A. amabilis being general favourites, the first for its carmine foliage and the other orange red; but they require heat to keep them in winter.

CONSTRUCTING A VINERY (*Old Subscriber*).—Your aspect is an excellent one for a vinery, which we should construct and ventilate as you propose, not having it air-tight. We should, however, prefer having the house wider than 8 feet. Ten feet would be much more satisfactory if that width can be allowed, and in that case provide a width of 18 inches for ventilation at the top of the house, this being of glass instead of board. With good attention excellent Grapes could doubtless be grown in troughs as you propose; but a mistake or neglect in watering might not always be preventible, and then failure would ensue. A good border would be the safer and simpler plan to adopt. With two rows of 4-inch pipes the entire length of the house, not round it, Black Hamburgs would ripen perfectly, and four rows of pipes would afford sufficient heat for Muscats.

MANAGEMENT OF CUCUMBERS AND TOMATOES (*J. J.*).—Two things are requisite for the production of abundant crops of Cucumbers in the open air—an ample supply of rich soil for the roots, and plentiful waterings of sewage or liquid manure. No pinching or regulation of the growth is necessary. Tomatoes are equally fond of rich soil and sewage, and they also require to have the tips of the shoots nipped off one joint beyond every flower truss, and to have the foliage thinned when the fruit gets large in order to expose it fully to air and sunshine.

ROOT-PRUNING A PEAR TREE (*J. B.*).—The falling of the whole of the blossom of your General Todleben Pear tree is one of a thousand similar instances this year. Exercise a little patience, and do not hastily resolve to mutilate the roots of a tree planted only a couple of seasons ago. The fruit of this Pear is very large, and you can never hope to have it in full perfection on slender branches. Rejoice, therefore, in the "wonderful growth" which your tree has made this season; let the roots also grow freely, and perhaps next year you may have a little fruit, but do not be tempted to over-crop so young a tree.

SOIL FOR TUBEROUS BEGONIAS (*N. C.*).—The beds should be made of rich, light, gritty soil 9 inches to a foot in depth. The tall plants should be laid on one side, planting the ball of roots aslant, and then carefully spread and peg the branches, which owing to their brittle nature will snap asunder if you try to bend them.

FAILURE OF MELON CROP (*R. K. Penon*).—The failure of your Melon crop is probably owing to a low or fluctuating temperature, to improper ventilation, and very likely to a want of water. The condition of the foliage is attributable to the first two causes. We have long grown Melons successfully under similar conditions to those you mention with stone rubble over the pipes, and have always had plenty of roots sprouting out of the surface by the time the fruit begins swelling, when we then usually apply a slight surface dressing of fresh soil or give plentiful supplies of liquid manure. Do this. Cut off the decaying foliage; give a surface dressing of 2 or 3 inches of fresh soil; maintain a steady temperature of 75° to 80°; give air early, so that the foliage may become somewhat dry before the direct rays of the sun fall upon it; syringe freely on the afternoon of every sunny day till the blossom opens, and water carefully but thoroughly; avoid much wetting of the stems, around which scatter a handful or two of charcoal dust; impregnate the fruit blossom carefully; do not syringe them for a few days, slightly raise the temperature, and you will soon have a fair crop of fruit.

RAISING MULBERRY TREES (*Concha*).—They may be raised from seeds sown in pots in a hotbed, the seedlings being potted off singly, and after being hardened off in a cold frame planted out in rows 2 feet apart and 1 foot asunder in the rows; or they may be raised from seed sown in May outdoors, covering lightly with fine soil, and watering frequently through a rose watering pot as may be necessary. The seedlings will need protection in severe weather in winter, as mat-, &c. In March take up the plants, cut back to one eye, and plant as stated above. If you wish the trees for foliage more than fruit propagation from seed will answer your purpose, otherwise seedlings are much longer in coming into bearing than those from cuttings or layers. Cuttings may be made in autumn or spring, selecting the well-ripened growths of last year with a joint or two of two-year-old wood, inserting in light soil in a sheltered situation, leaving one, or at most two buds, out of the ground, watering if the weather prove dry, but avoid making the soil sodden. The Mulberry is also readily propagated from eyes, the well-ripened growths of the preceding year being cut into as many places as there are eyes, placing them on their side with the eye uppermost in fine soil covered half an inch deep, and keeping them moist. The buds soon grow, roots being emitted from the under side of the eye or wood. Layering in spring or autumn is also an eligible mode of propagation, taking a ring of bark off just below a joint.

MARECHAL NIEL ROSE NOT THRIVING (*M. C.*).—Our experience is that on its own roots this Rose is not at all satisfactory, especially when a strong growth is made, the plant having a tendency to a cankerous swelling just above the surface of the soil, which causes enfeeblement of the plant, it making very little growth and next to no roots. It is no better on its own roots grown in pots or planted out. It succeeds, however, admirably upon the Briar, and planted out makes shoots over 20 feet long in a season. We should procure plants upon the Briar, plant them out in the border at the back of the house, train the shoots up the back wall and upon the roof, and in due time you will be rewarded by glorious blooms in plenty.

CULTURE OF SARRACENIA PURPUREA (*G. W. O.*).—The plants may be "grown in a greenhouse, they being syringed every morning, and in a cold frame and covered with a bell-glass, watering overhead daily." We have seen them very finely grown in that way, but equally as fine or finer plants grown outdoors without any protection whatever as far north as York, grown in well-drained rough peat and watered overhead daily during growth. Supply the plant with sufficient moisture in dry weather, beyond this it may be left to itself safely in your Devonshire climate.

ROSE LEAVES SHRIVELLED (*F. A.*).—We have now for several seasons observed that certain Rose leaves curl and shrivel up as in your case. It is the result of extravasated sap, caused probably by cold currents of air on the delicate foliage, which promotes an unnatural contraction of the sap vessels. We have invariably found it makes its appearance first under or near large trees. Baronne de Maynard is with us very subject to it, but we have observed it also on the strong-growing Paul Neyron, &c.

PEAS DYING OFF (*A. N.*).—There may be several causes for your Peas growing so weakly. The seed may have been old, the soil may be poor, and the excessive amount of rain we have had may have affected them.

NAMES OF PLANTS (*H. H. C.*).—We think the Fern is Asplenium lanceolatum, but an abnormal frond. A. lanceolatum usually grows from 4 to 6 inches in height, and is distinguished from Asplenium Adiantum-nigrum, which it very much resembles, by the pinnae being set in pairs and almost at right angles with the main stem; while in A. Adiantum-nigrum the pinnae are generally set alternately. (*Horace*).—The Ceanothus is probably C. Veitchianus; as we thought, you had previously sent wrong foliage, that apparently of a Jasmine. (*F. H.*).—Calycanthus floridus. (*F. B. W. L.*).—Specimen too much pressed for identification. (*Constant Reader*).—Viburnum Opulus, var. (*Mrs. Podes*).—Celsia cretica and Erinus alpinus. (*X.*).—1, Geranium molle; 2, Ranunculus acris; 3, Vicia sativa; 4, Lathyrus Nissolia. (*R. Carnall*).—1, Syringa persica. (*J. E. F.*).—We would be glad to oblige you, but we cannot name florists' flowers. (*F. P. Hodges*).—Medicago maculata, or Spotted Medick. It is an annual, and the only way to get rid of it will be to mow it before it runs to seed. (*J. C.*).—Hyoscyamus niger.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

HAY MAKING (FIELD HAY).

THIS is one of the most important subjects to be considered in the management of the home farm. We shall now only refer to the making of clover or field grass hay, hoping to treat of the making of pasture and meadow hay hereafter. Great improvements in the way of expediting the process of hay-making have become available during the past few years. Machinery has now

to a great extent taken the place of manual labour and greatly accelerated the process of making hay, without, however, reducing the cost very much as compared with the expense of manual labour previous to the invention of machinery. It must, however, be remembered that the price of labour at that time was much lower than at present. In those cases where the cutting, making, stacking, and thatching of hay is done by contract, the price per acre is not appreciably lower now than it was before machinery came into general use, particularly as it is now necessary to reckon the cost and interest upon and the repairs of machinery. It will certainly depend very much upon the extent of the home farm as to the propriety of the use of all the machinery required for the process of hay-making. Let us enumerate what is required to complete the items of machinery—first the mowing machine, next the tedding machine, the horse rake, the loader attached to the waggon, and the horse power, rick-making or elevating gear. Now, taking these machines altogether they will cost a large sum of money, and it must depend upon the extent of the land in occupation whether this outlay will be judicious or otherwise, at the same time calculating the rate of wages of men and women, or the possibility of obtaining sufficient hand labour in the neighbourhood to enable the work to be done with the celerity so desirable in the making of hay of the best quality. When we consider the great variations in our seasons under the best and most judicious management, the weather will always have much to do with the quality and condition of the hay. For instance, we will take the recorded rainfall in June and July of 1858, which was twelve rainy days, the depth of rain 4.99 inches; but in the year 1860, in June and July, we find that there occurred thirty-nine rainy days, the depth of rain being 7.65 inches. The contrast between these two seasons is extraordinary, 1858 being one of the best hay-making seasons, and the year 1860 one of the worst we can recollect during a period of fifty years. These two seasons serve to illustrate the difficulties which will often be experienced in saving hay, the fact being notorious that in a bad season inferior hay only can be expected, which will cost probably double or treble in the making and stacking as compared with the finest hay the result of a favourable hay harvest.

The age of the grass or state of growth at the time of cutting is of the greatest importance, not only as to the quality of the hay in a fine season, but its being able to take heavy rains in a wet time with the least injury. To effect this the grass should be cut just as it comes into bloom, at which time it contains the most juice and least woody fibre. No day of the month can be stated, because the blooming time will vary as much as eight or ten days in certain seasons, and the sorts of grass will differ also as to their blooming time. Much difficulty often occurs as to the best time for cutting grass when two sorts are grown together, each blooming at different periods. For instance, it is a common plan to sow the ordinary sorts of rye grass with broad clover. When this is the case they are never in blossom together, the clover being so much later than the rye grass. The exception, however, is Italian rye grass, which although earlier in growth than ordinary rye grass, is at least ten or twelve days later to bloom; therefore it is the only sort which will be fit to cut at the same time as broad clover and other late grasses, such as Dutch and suckling. In consequence of this we do not recommend the growth of ordinary rye grass in conjunction with broad clover, nor do we advise Italian rye grass as a mixture with broad clover, because, although it comes ripe at the same time, yet it has an injurious and overpowering effect on the growth of the clovers both in the first and second cuttings, and it prejudices also the following wheat crop. Having objected to rye grass with broad clover, we feel bound to recommend a substitute we always sow, and have done so the present seed time—mixed suckling with broad clover, which in the next course for the sake of alternation should be suckling in admixture with white Dutch clover; but for early cutting without reference to a second crop we prefer the yellow trefoil mixed with ordinary rye grass. These mixtures will blossom together, and it is only by adherence to this matter that the hay can be of the first quality, for if it is neglected one or other of the sorts will be cut to a disadvantage. Rye grass is usually grown with the clovers for the purpose of enabling the crop to be secured some days earlier than clover only; and allowing that it can be secured from three to four days quicker when rye grass is mixed, we claim that the mixture of suckling with clover will enable the hay to be secured from one to two days earlier than when broad or white Dutch is grown alone.

One of the points to be considered on commencing to cut the grass is, What are the prospects or probabilities as regards the weather likely to prevail during the hay-making season? We readily admit the variable climate we live in, and the difficulty of forecasting the weather. There is, however, a general rule in which we have found but few exceptions—viz., that when we get an abundant crop of grass we usually have a precarious time in which to make the hay. On the other hand, when we have a short light produce of grass we are generally enabled to secure it well. When there is a prospect of fine weather, as fast as the

grass is cut, if it consists of clover alone, we prefer to have it tedded by the hay-making machine, and the following day tedded again. The next day it may be raked into small windrows, to be turned the succeeding day. On the fourth day if the weather still continue fine the windrows may again be turned for the last time, as about the fifth day, except in the case of an extraordinary bulky crop, the hay will be fit to carry to the stack, and we prefer, instead of having it poked beforehand, to run it together with the pooking fork into large rows and cart it to the stack in a hot and dry state. By this mode of proceeding we have made the best and finest hay without losing the leaf of the grasses so essential to its value, whereas if the swathes are only turned the hay does not dry equally, the outsides of the swathes being crisp and brittle, and much leaf is lost. This may, however, be prevented to some extent by having the swathes turned every day until fit to carry, when it may be poked just before the carting, for we most decidedly object to pooking the previous day if the weather is ever so fine. Turning the swathes daily, however, involves much hand labour, as does also the turning of the windrows after tedding. Sometimes where hands cannot be obtained this system may be modified, but it cannot be done without if hay of the finest quality containing all the leaf with the stems of the grasses dried with regularity is required. Under this system we have, when the season has been favourable, made our Dutch and suckling clover hay in such a state as to resemble a sample of hops, especially when the grass has been cut before it comes into bloom, which is our practice if the hay is required for feeding the young lambs for sale in the London market. If our hay is only required for use on the farm or for sale for the feeding of horses and cattle, whether the grass consists of rye grass and clover mixed, or saintfoin, or the clovers alone, we adopt the plan of merely turning the swathes daily until sufficiently made. Another point is, When rain threatens is it best to run the swathes into pook or leave the hay in swathe? The latter plan is the best if the rain is only a passing shower, but the former is advisable if the weather glass portends a succession of wet days.

WORK ON THE HOME FARM.

Horse Labour.—The horses will yet be required in preparing the land for Swedes and turnips. Horse-hoeing of root crops, such as mangold wurtzel, carrots, parsnips, and cabbages, will be required for one or other of these crops continuously. The horse-hoeing of mangold and cabbage may be very well done when the land is sufficiently dry by the ordinary horse hoe with three shares or knives, the centre one to be a triangular or arrow-headed share; the knives being inverted and used on each side of the implement, and in the best-made horse hoes they are adjustable as to width. They have also been made convertible into double mould ploughs, available for stretching land for roots, and also for earthing-up potatoes. They have also in some instances a frame for digging and lifting the crop of potatoes, and when properly attached they answer the purpose very well. The horse hoe should also have three triangular arrow-headed shares to cut about 8 inches wide for the purpose of hoeing between the carrots and parsnips; and one horse will when three shares are properly arranged hoe the space between three rows of roots at one operation, because these roots to obtain the heaviest weight per acre are usually drilled at about 14 or 15 inches apart. The horse hoe will then move the ground sufficiently to enable the hand-hoeing to follow, which will be much facilitated thereby.

The horses will also be required to lay out manure if yard dung is applied as fast as the green crops are cleared. Whether the land is required for roots or the planting of cabbage the quicker it is done after the green crops are removed the better, because if the weather should become harsh and dry the land will work unkindly in some instances if allowed to lie too long after the crops are carried off. The carting and ricking of the early sorts of hay will now be going on, and this may be done by working after mid-day, the morning part of the day being occupied by working on the land for root crops, &c. At this busy time of the year we advise the making of hayricks in the field where it is produced, it being got together with much less labour as well as risk; because, whether the hay is required for sale or consumption on the home farm, any extra carriage will be done in the winter months, when the horse labour is not of so much consequence.

The odd horse or horses, according to the size of the farm and the requirements of the cattle, horses, &c., will now find ample employment, because when all the clover required for the team horses and the cattle is cut, as it ought to be, by the odd man, it will engage the odd horse for some time, and especially when we have added to this the border grass and that from banks, hedges, and ditches. Not only is this usually given to young cattle and pigs, but we know at this time a farm whereon the hedges and borders are so numerous that two men are almost constantly employed in cutting border grass and carrying it out in some cases for cartage between the corn fields. In the case of the fallow fields, the clover fields, and those now under cultivation for roots, the carts take it away as fast as it is cut. In the instance to which we refer twenty-five dairy cows are fed daily in the stalls, and have been so fed ever since the first week in May,

and fifteen young store cattle are fed in yards by the same means. Both these and the dairy cows get a moderate allowance of oil cake daily, all of which are in excellent condition, the cows yielding abundance of milk of good quality, which is sent off by railway to the metropolis daily. This is strictly an economical way of turning to account food which upon farms in general is wasted or must afterwards be removed at considerable cost in order to keep the fences and banks in a trimmed and decent state. But, unfortunately, when hedges, &c., are not sheared until the autumn then the weeds and coarse grasses will have deposited their seeds on the headlands and margins of the fields.

Hand Labour will now consist of mowing the clovers where the mowing machine is not used, and if it is so used some labour is required to cut the grass with scythe round the outsides and corners of the fields. Before the machine can commence work, when the weather is adverse, some men may draw the straw and have it properly stored away in readiness for thatching the ricks of hay. During the present week we have known rye which was cut for straw only carted to rick in sheaves, which will do either for thatching or for use in the winter as fodder for cattle. Some men are now required to prepare ashes by screening, in order to mix with artificial manures for Swedes and turnips; others are engaged in hoeing the mangold wurtzel, kohlrabi, &c.; and if the weather should continue wet and the weeds not die, as was the case in 1860 and 1861, the women should pick up the weeds by hand and heap them in the field, and this we have found the only way to keep the root land clean in an adverse season, and it is also cheaper than repeated and ineffectual horse and hand hoeings.

JAPANESE SILKIES.

THOUGH Japanese Silkies can hardly in size be classed among Bantams, whose weight they almost double, still they are so Bantam-like in their habits and good qualities that some account of them would seem a natural sequel to our notes on Bantams. It is not long since one of the first fanciers of the breed and best judges of it wrote upon Silkies in these columns; still it is not always easy to look back to the numbers of past years, and we know that the ranks of poultry fanciers have of late been largely increased, so we will without apology return to these quaint little natives of the far east. We confess to having once had almost an antipathy to them from their, at first sight, unnatural appearance with purple comb and black skin, but the possession of two or three, kindly given us some years ago, at once converted us into great admirers and fanciers of the breed. To be appreciated they must be known and kept. We spoke of Bantams as suitable for those whose premises are small; still more so are Japanese Silkies, for, in addition to their being contented with small quarters, they cannot fly above 2 feet high, and a fence of 3 feet will well keep them confined. They are hardy and very long-lived. Heavy rains and broiling sun they seem to dislike, but a very small abode will protect them; indeed we have seen them happy and flourishing in the smallest houses of amateurs' construction, like dog kennels. They are singularly quiet and good-tempered. A lot of cockerels will live peaceably together. The hens are good layers—that is, they will lay at all times of the year, and that regularly. In the late autumn we have often entirely depended upon our Silkies for eggs. They do not, however, lay many, seldom more than fifteen, before becoming broody; but it is as mothers that they chiefly excel. We have found them sit well wherever placed, and cover eleven of their own eggs, or thirteen Bantams'. They hardly ever crush an egg or chicken, and remain longer with their broods than almost any other hens. With those who rear delicate breeds of poultry, Pheasants or Partridges, Silky hens are always in demand as foster parents. So much for their utility; now as to their points of beauty.

They are particularly suitable to those who want a hobby in fancy poultry without having much spare time or much space to devote to it, for they mature rapidly, and are often fit to show at four months old. They hardly suffer at all from exhibition, owing, we fancy, to their contented disposition, for they never fret or pine in a pen. We have of late observed their classes poorly filled at some of the great shows; this must be the result of some unjust prejudice against them, or of ignorance of their merits. We have had Silkies imported both from Japan and China, and after comparing the best of these with the prettiest birds of the kind seen in England, and learning the opinions of the best poultry judges on them, we may confidently say that the chief points to breed for are the following:—Their general appearance should be very fluffy and silky, the hackles of the cock like spun glass, and the whole down in both sexes as soft as possible. We have seen bad specimens with harsh wiry down; this is very objectionable. Their general form should be round, with nice "cushions" rising from the back to the tail. The cock's sickles should be silky and fall nicely over from the cushion, not sticking stiffly up. The crests of both sexes should be of moderate size; that of the cock flowing backwards, that of the hen round and full. Their combs should be of mulberry colour, by no means reddish, rounded and rather smooth; in the hen quite undeveloped, but in the cock larger. It should on no account approach to the rose comb of a

Hamburgh with regular peak behind. Some years ago single combs often appeared among our chickens, we suspect from distant relationship to some other eastern breed, but we have now quite bred them out. Earlobes may be either of mulberry colour or bright torquoise blue; the latter are much the prettier, though in cocks they turn whitish and ugly with age. Their legs should decidedly be blue; they often have a green tinge, and an otherwise perfect bird, imported from China and kindly given to us by Mr. R. E. Horsfall, had green legs, but such are certainly an eyesore, and seem to go with green beaks and earlobes, which are very unsightly. It should be said that the legs of Silky chickens when first hatched often appear greenish, but become quite blue at two or three months old. Fashion or fancy has decreed that they shall have five toes; our own best imported birds have always had this number. Their legs, too, should be clothed all down with a nice even line of feathering, becoming thicker on the outer toes. Stiff vulture hocks are quite out of character with a round downy breed and should be discarded. There seems a tendency in the breed to increase its leg feathering, and we often find it necessary to breed from one parent with almost bare legs to counteract this. Beauty and utility should as far as possible be combined in every breed, and undue leg feathering would detract from the value of Silky hens as mothers, making them clumsy. Very small size, too, should not be sought, for Silkies are not Bantams, and this too would lessen their good maternal qualities.

We must not omit to mention their faults, which are very few. They are not good table birds; their skin and bones are black, and look by no means tempting; the flesh itself is white and good, so in the case of all faulty specimens we should advise that cockerels be killed early, and not cooked whole, but used for entrées, in which the skin need not appear. All imperfect pullets will find ready purchasers among Game preservers. Silkies are also subject to elephantiasis or scale on the legs. On its first appearance dress it well with compound sulphur ointment or Foster's ointment, and thoroughly cleanse the perch or floor on which the bird affected has roosted; it may thus easily be stamped out, but if neglected and allowed to increase it becomes painful to the bird and is infectious, so that even clean-legged varieties will catch it. It probably in the first instance originated from dirt. Silkies should, if possible, be kept on short grass frequently swept; their leg feathering will then keep clean and unbroken, and there will be little fear of this disease appearing.—C.

THE PARIS POULTRY SHOW.

WE promised to give some further notes on this interesting Exhibition, and now are able to keep our word. The great length of the Show has not been conducive to the health of the birds or to their general temperament. We have observed many of the more delicate kinds with drooping heads and closed eyes; and the absence of proper food for so long a time brings on unnatural cravings, such as the greedy devouring of eggs and feathers. But its duration is as it were an accident of the Show. We must turn to its national features.

We were somewhat astonished before the prize cards, or rather metals, were put up to see advertisement cards on the majority of the French pens, and men going about with similar cards in their hats touting for purchasers; in fact the Show was quickly converted into a market on a large scale. One good lady, who prides herself much upon the delicacy of flavour of her *La Flèche* and her system of fattening, not only tried day by day to induce us to carry home some of her pullets, but wished also to enlist us as an interpreter to represent to the English fanciers in the show yard the excellence of her breed. The mercenary side of the great contest, though at first contrary to our English ideas of a show, most decidedly has its advantages, for an immense number of birds seem to have changed hands, and that at moderate prices, German and other fanciers having come from far to buy English stock half way on to its destination. The English breeders, too, are not going home with empty baskets, and if we are not mistaken more and better *La Flèche* will appear in our coming shows than have been seen for a long time. Some of the rarer Polish, too, will come over the Channel. It will remain to be seen how the damper climate will suit them. Fancy poultry in France has not the same marketable value that it has in England; and we have heard it said in the *Eplanade des Invalides* that the market has there been spoiled for our countrymen by the too great readiness of a famed Yorkshire exhibitor to pay down the prices asked for some pens. To come more particularly to the classes.

The French classes were throughout very large. Of the eighty-five *Crève* cocks we certainly thought the two first-prize birds worthy of their place as splendid specimens. We preferred Mr. Fowler's third-prize hens to the other winners. Houdans numbered about eighty cocks and seventy lots of hens. We greatly liked Mrs. Vallance's second-prize cock; and her hens, which had only an honourable mention, were by far the best in their class, two of them being marvellous birds. We may here observe that though the number of hens for a pen is by the catalogue given as three, the French Judges admit four or more, and

even a cock as a supernumerary companion! This peculiarity much bothered the eyes of the English Judges. *La Flèche* had over fifty entries in each class. We never before saw such a collection. The French do certainly understand table poultry, and think much of smallness of bone. They are fully alive to the fact, that crosses with Asiatics spoil table fowls. The classes for *La Mans* and *La Bresse* were not large; the former we may here remark are large, square, black fowls with coarse rose combs; the latter much smaller, also black but with single combs and not unlike poor *Minorcas*. The classes for any other variety of French breeds were well filled with mongrels of diverse provincial types.

Cochins were interesting classes, and here a difficulty arose between the Judges of the two nationalities, for the French fanciers abhor the least tinge of red in a Buff *Cochin*, but do not object to meanness or even white feathers, while they prefer long legs; indeed, one of the French Judges constantly measured the height of the Buff cocks with his stick, and pointed out the advantage which a huge mealy-hocked bird had in this point. The said extraordinary specimen was first. It was arranged that first, second, and third prizes, parallel to the French awards, should be given to English birds of the English type; subsequently, to the disappointment of the English exhibitors' Judges, these were changed into "supplementary prizes," though with the value of first, second, and third. In White *Cochins* Mr. Darby utterly distanced all competitors, the Frenchmen being quite amazed at the beauty of the cock. In Blacks, too, he should have been first again, but the majority of French votes gave it to a cock with a crooked comb and much white in tail. The awards in Black hens were unaccountable; Mr. Darby's wonderful trio were objected to for one being "down behind." In the class for other kinds of *Cochins* nearly all went to Cuckoos. The French Judges proposed to disqualify all Partridges as a race unknown in France. Mr. Cresswell thereupon observed that "the English Judges understood that they came not to a French but to an International Exhibition." The retort had its effect, and Mr. Fowler's magnificent Partridge cock got a second and his hens a third prize.

Brahmas.—These two classes caused a most protracted discussion. French taste will not look at a pea comb, and only recognise the Light variety! All sorts of arrangements and compromises were tried, and at one time a single prize had been conceded to a Dark cock; but when the Jury came to the hens of the same variety it was too much for them, and a courteous Deputy of the French Chamber who was of their number most politely and good humouredly, yet steadfastly, refused to believe that they were of the same breed as the cock. Ultimately it was agreed to give prizes to both types as in the Buff *Cochin* cock class. In both sexes Mr. Norris was first with lovely Dark birds, in the one case Mr. Beldon and in the other Mr. Webb being very near him.

Dorkings were not well represented. In cocks the first and supplementary prize (given out of courtesy at the special request of the English Dorking fanciers) went to the best birds. In the hens three nice Silvers were first, though their colour was too rusty; and three Darks second.

Spanish were very fair. There could be little doubt about the first awards, which were excellent in both sexes; but all after that seemed haphazard work, beautiful hens of Mr. Fowler and Mr. Frounce being left behind two very indifferent pens.

In *Hamburgs* Mr. Beldon triumphed with a Gold-spangled cock and Silver-spangled hens. It should be remembered that in France Pencilled *Hamburgs* are called *La Campine*, and so should have been in the Variety class.

In *Game* Mr. Beldon was again first with a beautiful Brown Red cock. Bantams were shown together with large Game, and a smart little Duckwing cock from Mr. Entwisle's yard was second. In hens Mr. Beldon's Brown Reds were first in quality, but a general combat had spoilt their looks and put them out. They gave way to Mr. Entwisle's Bantams of the same colour. In these breeds we are far ahead of our neighbours.

Russian Malays were but small classes. Mr. Ridley's hens did not receive their due in a second prize.

White-crested Dutch (Polish) were not such classes as we expected to see. Mr. Darby's cock was easily first, and his hens would also have been so had not one of them unfortunately died before the judging.

Paduans were magnificent classes. We shall hope to devote a special article to them soon. First, both in cocks and hens, were good Buffs. The decisions in these classes are made rather misleading by the rule that an exhibitor may gain but one prize in a class. Most of the best birds came from two yards, and so some of the real winners do not appear in the prize list. Among the colours shown were Golden or Silver-spangled, *Ermine* (*Hermine*), or white with black specks on the neck and tail, pure White, Blue, and Cuckoo (the latter two varieties evidently not pure from their large combs), and Buff, also Buff-frizzled and White-frizzled.

The classes for "Any other variety" were immense, and here some extra prizes might well have been bestowed. In cocks a huge *Langshan* was first, a Brown *Leghorn* second, and a *Plymouth Rock* third. In hens, beautiful *Sultans* first, bad *Langshans* second, and a nice *Minorca* third. We thought some *Sultans* shown

by Mrs. Christy of Falkoners well worth an honourable mention, as also (which we forgot to mention) two pretty trios of Buff *Cochin* pullets shown by the same lady, whose only fault was their youth.

Turkeys were chiefly Black and not large. We saw nothing to equal Mr. Ridley's Bronze cock either in size or condition. *Geese* were fine, *Toulouse* beating the *White* variety in both sexes. Mr. Stott's two Grey *Geese* are simply marvels. We fancy they came from the renowned *Aylesbury* yards. *Ducks*.—The judging was in these classes simply ridiculous. The first drake was a miserable little thing, which could not weigh above 4 lbs.; second was the finest *Aylesbury* we have ever seen, and third a little mottled creature, which in any farmyard we should have picked out as a bad and degenerate specimen of the mongrel race. Magnificent *Rouens* and *Pekins* from *Aylesbury* were left out. The *Duck* awards were, if possible, more ridiculous than those for *drakes*. Three small yellow-billed *White* birds were first, little *Rouens* second, three brown under-sized creatures third, and the well-known gigantic *Aylesbury* birds fourth! There is much to be learned on both sides from such international contests.—C.

FERTILITY OF SWANS.

LAST year I wrote to you respecting a pair of Swans which laid nine eggs, and both birds sat at the same time on the one nest without result. I had not time to follow out your kind instructions, so let them alone, and this April they made a nest and laid a few eggs, which I took away. Altogether we have removed twenty-seven eggs. Fearing they might lay to exhaustion my man left one egg in the nest, and the next day another was laid, and for the last three weeks one of the birds has been sitting closely. Strange to say the other seems to be keeping watch, for if the Ducks on the lake approach the nest they are immediately driven away. Is not this an unusual number of eggs for two Swans to lay?—H. C.

TREATMENT OF RABBITS WITH LITTERS.

THE number of Rabbits that are born is very large, but the number that arrive at the age of two months is comparatively very small. We have noted that about three days before the event the hutch should be covered over a little so as to insure perfect quiet and warmth, and the mother should be provided with a little water or milk to quench the thirst natural at that period. The nest is beautifully composed, the groundwork being either hay or straw, according to the materials supplied. Each doe should be well supplied with both. Whichever is selected, care should be taken that it is soft. If hay, the sweet meadow variety should be selected. If straw, it should be soft and pliable, but quite dry. Rye straw will not do at all, being much too hard. The doe will tear it up into very uniform patches. She will carry lumps of it about the hutch in her mouth as though she were afraid of its being taken away from her. Finally she deposits it in the snugest corner in the sleeping room and piles it up, carefully arranging the tufts so as to get a soft surface. This she presses down to make it solid. The centre is a little hollowed out and is filled up with fur, which she tears from her body, chiefly from the breast. Sometimes the young are born a few hours after the nest has been finished, but in other cases the delay is greater. In a few instances the young have not been born till a week after the preparations have been completed. The young do not all come into the world at once, the births frequently extending over so long a period as twelve hours. In this case the process is weakening. Great quiet should be kept at this time. If the doe is disturbed during parturition or between the births she often either eats or neglects the young ones. An experienced breeder knows quite well when the process commences and what course to pursue; but a beginner may in his curiosity open the dark door, if he does so his litter may be considered lost. Of course the doe must be fed at such a critical time or she will suffer from weakness, but the food must be put into the big room quietly and quickly. As to the best food, succulent roots and leaves may be recommended, especially the former. A few soaked oats may be liked; a hot barley meal mash will be a great relief in case of a troublesome parturition; scalded peas will also make a nice warming meal. Warmed and sweetened milk will at all times be found satisfactory; it is a relief to the mother and aids the secretion of milk. Lettuces, wild parsley, and sow thistles also possess this tendency, and may be given in great freedom so long as the bowels are not relaxed. If there is any symptom of this sort a little less of the very succulent kinds of food should be given, and any mash should be well strained. For three days after the birth of the young ones the hutch front should be covered with a sack or other porous covering so as to keep out the wind and cold. Rats and mice are a great trouble at this time; Rabbits will not face either of these animals; rats will eat the young ones. The only remedies are to put the hutch on a small stand too high from the ground for jumping, or to have the wires so close that nothing can squeeze between. This is hard to do in the case of mice. The

young should not be looked at till they are a few days old. While the young are in the nest continually the mother must be very well fed, or she will suffer from the suckling. After about a fortnight the strongest of the young ones begin to evince an anxiety to see a little of the outer world, and walk or rather tumble into the open compartment. This is a critical time, as with all care the mother is apt to tread upon the little ones. Some mothers are very clumsy in this respect, and others are equally careful. The trough should be so placed that the young ones cannot get at it, as they would lie in it and spoil the food. When about three weeks have expired the nest may be taken away and the sleeping place carefully cleaned; supply with warm litter for the little ones. As the youngsters begin to feed care must be taken that they have such food as they can eat. The oats should be bruised or crushed before given and mixed with bran, which is a very good food for young Rabbits. Green food should not be given freely to them, but the mother should have plenty. The young should be shut away from the mother sometimes, so as to give her a chance to eat in peace. Too many young ones should not stop with each doe, because they weaken her very much. If the breed is a very large one the stronger young ones should be taken away first, so as to give the smallest a chance of improving their size.

—GETA.

VARIETIES.

AMONG the Jurors of the Royal Commission for the Paris Universal Exhibition of 1878 are for fermented drinks, H. Vizetelly, Esq.; cattle, Jacob Wilson, Esq. and H. D. Adamson, Esq.; sheep, Hugh Aylmer, Esq.; pigs, J. Ross, Esq., and L. S. Chrisp, Esq.; poultry, O. E. Cresswell, Esq., and M. Leno, Esq.; conservatories and horticultural apparatus, John Wills, Esq.

—OWING to the protracted dull weather and almost incessant showers haymaking in the south is at a complete standstill. We have seen crops cut and lying on the ground for three weeks, and the produce almost resembles manure. This is the more unfortunate, since the weight of the crops has been more costly than usual in the cutting. Twelve shillings an acre has generally been paid for scythework, and unless the weather changes and a term of sunny days occur that and other outlay incurred will have been thrown away. Where the crops have not been cut both grasses and clovers are decaying at the bottom, and managers of meadow land are sorely perplexed in consequence of the extraordinarily protracted dull and wet weather that is turning their produce into manure instead of hay. Hot and dry weather is urgently needed, or serious losses cannot be averted.

—THE United States is far in advance of any other country in point of agriculture, the development of this department of industry having been truly marvellous in late years. Thus the corn crop increased from 768,320,000 bushels in 1867 to 1,340,000,000 in 1877, or nearly 100 per cent. in a single decade. The hog crop, which may be said to be a product of the corn crop, reached the enormous total for the year ending with last month of 9,048,566 head, an increase of rising 100 per cent. during the last ten years. The yield of wheat for the past year was 360,000,000 bushels, or 50,000,000 more than was ever before produced. Deducting the amount necessary for home consumption and seed upwards of 110,000,000 bushels are left for export. In almost all other farm products there has been nearly a corresponding increase.

—WITH fine weather to follow from this time the crops, states the *Mark Lane Express*, may be fairly good, but they cannot be the great crops that were expected a month back. The wheats have lost colour and strength, the barleys in many instances have gone thoroughly to the bad, peas have grown weak, clovers have become rotten at bottom so that the hay made from them will be of poor quality, and mangolds on many farms have had to be ploughed up owing to the seed having rotted in the ground. It is a very moderate estimate to reckon farmers' prospects, on an average, at £2 an acre on all their arable land less than they would have been put at a month ago.

—PIGS IN THE UNITED STATES.—The American Commissioner of Agriculture gives the following as the number of pigs in the United States from 1870 to 1878 inclusive:—1870, 26,751,600; 1871, 29,457,500; 1872, 31,796,800; 1873, 32,682,050; 1874, 30,860,900; 1875, 28,062,200; 1876, 25,726,800; in 1877, 28,077,100; and in 1878, 32,262,500.

—A PROPER system of breeding lies at the foundation of all improvements in the production of meat. An eminent authority has justly remarked that "coarse, mis-shapen, unthrifty cattle cost just as much for rearing and fattening as those of the best quality, and yet may not be worth so much by £3 or £4 a head when they come ultimately to market." But this estimate places the question in a more favourable light than it deserves, for it takes longer time—that is, more food to fatten a coarse unthrifty beast than it does to finish one of better quality for market, and even when the coarse animal is fit for the butcher it is not worth so much per stone or hundredweight as the other. The authority from whom we have quoted further says: "The loss which is annually sustained from breeding inferior cattle is far greater

than those concerned seem to be aware of. It is impossible to estimate this loss accurately, but from careful observation and inquiry we feel confident that it amounts to not less than 50s. a head on one-half of the fat cattle annually slaughtered in Great Britain. If this be so it follows that without expending a farthing more than is done at present on food, housing and attendance, the profits that would accrue from using only the best class of animals would be equivalent to an advance of 1s. per stone in the price of beef, as regards half of the fat bullocks brought to market." An advance of 1s. per stone on half the fat cattle annually slaughtered in Great Britain would be equivalent to a gain of over three and a half millions sterling.—(*Irish Farmers' Gazette*).

BEEES AND BEANS.

THE theory advanced by Mr. Pettigrew on page 349 is new to me, but I do not on that account set it down as incorrect. I have to-day been examining the edge of a bean field of nine or ten acres, and we could scarcely take a step without seeing and hearing one or two honey bees at the blossoms. If the whole field was as full of bees as no doubt it was, there must have been many thousands there. The humble bees were very few. The honey bees attacked the blossoms both in front and rear—at the mouth and the spur—but I cannot say whether the same bee always went to the same part. The humble bees entered the mouth, and, as far as we could see, did not tap the nectary. If this were not sufficient to disprove the theory of the humble bees acting as tapeters for their smaller relatives, it would appear impossible for their small numbers to supply the multitudes of honey bees that haunt the bean fields, even if their movements were far more rapid than they are.

By-the-by, I venture to think that our vulgar name "bumble" bee is more expressive and better in every way than the more fashionable word humble bee.—J. BYRON, *Killingholme Vicarage*.

THE NATURAL AND THE ARTIFICIAL.

"NOTHING beats Nature" is an old and oft-repeated statement in agriculture, horticulture, apiculture, &c., Art assists Nature. Bee-keeping in this uncertain climate unassisted by the intelligence and hand of man would be a failure. But some people may think that to attempt bee-keeping in this country is a violation of Nature's laws—that bees here are not in their natural climate and element. This may be said of potatoes, celery, and turnips; but what were they in Nature's garden? Mere weeds or skinny vegetables. In grape-growing what has art not done? In profitable and successful bee-keeping the knowledge and hand of man lend assistance by giving stimulus to and playroom for the operations of Nature. Artificial comb foundations, artificial swarming, feeding, and uniting are resorted to in the management of bees.

The artificial comb foundations are a new invention not yet introduced to the great mass of bee-keepers. They have not, I fancy, been fully tested yet in this country. We have but little evidence to guide us in estimating their value. Records of experiments with them will doubtless appear by-and-by. Their price in retail houses is high at present. One correspondent stated that he paid 1s. 6d. per sheet of 18 inches by 12. It would take about eight or nine of such sheets to fill an ordinary sized hive. The cost of artificial foundations enough to fill an ordinary sized hive would be about 12s. Even if the bees adopt them readily and build upon them easily the question that arises is this, Are they worth this sum? Would the investment be a profitable one? We earnestly hope that some of our readers who have given the artificial foundations a fair trial will favour us with the results of their experience through the pages of this Journal.

Though we have not used artificial comb foundations we have frequently used natural combs artificially; that is to say, we have taken white virgin combs from large hives and fixed them in supers with great advantage and success. Natural combs thus fixed in supers and placed on hives tempt the bees to enter them at once and commence work. Can the artificial comb foundations be compared to the natural products of the bees themselves? Are they anything like equal in value or convenience to the perfect and beautiful productions of Nature? The comb foundations are perhaps as perfect as the hand of man can make them; but it should be known that they are but foundations without the superstructure of cells, and must be altered and reformed to some extent by the bees before cells can be built on them.

If we try to compare the cost of the natural combs with that of the artificial foundations we find a broad margin of gain on the side of the natural. Take a hive 16 inches wide by 12 deep, and fill it with bees from honey hives in September or October; give the bees 20 lbs. or 6s. worth of sugar, and they will fill the hive full of beautiful combs and store up about 20 lbs. of syrup. The 20 lbs. of sugar make about 40 lbs. of syrup, but 20 lbs. in weight are lost in comb-building. Take the bees out, and there remains a hive full of pure white virgin comb half filled with syrup: call it syrup honey. Of course this syrup honey should be removed from the combs before they are used for supering, and the only way of getting it out is to let the bees of other hives take it. If

the bees that built the combs be placed in an empty hive with an empty wooden super on it, and the hive with the syrup honey be placed underneath it, the bees will soon empty the combs, and with or from their contents secrete wax enough to fill the super with virgin combs. Thus perfect and beautiful combs, incomparably better than mere foundations artificially made, may be obtained for supering, and obtained at a much cheaper rate than the sheets of foundations at 1s. 6d. a piece. The use of a 16-inch hive is of course unnecessary in filling supers by artificial feeding. It has been mentioned here merely to give the reader an opportunity of comparing the cost of natural combs with artificial foundations. We sell run honey here more readily than honey-comb, hence supering is not our special aim. If it were we should endeavour to fill as many supers as possible with natural combs by artificially feeding the bees from honey hives late in autumn when little or no pollen could be found. Indeed it is possible to fill supers in a dark room or cellar by artificial feeding. Having confidence in the growing intelligence and ability of many of our leading apiarists, I believe they will adopt and develop the best means and ways of preparing supers acceptable to bees for the speedy reception of gluts of honey in favourable weather.

I shall not in this letter compare artificial swarming with the natural process; and as most bee-keepers have of late had enough to do with artificial feeding we shall hope that the weather will take a turn favourable for bees, and give them opportunities of gathering together large stores of the sweetest productions of Nature.

I am now on a visit to my native village, Carlisle, in the centre of Lanarkshire, where bee-keeping was successfully and profitably practised sixty years ago. The old race of bee-keepers have all passed away since my youthful days, but I am glad to find that bee-keeping is still successfully practised and is a source of pleasure and profit to many working people here. The pasturage for bees here is pretty good. Though my mission here is to seek health for myself, I have penned the above from a desire to write one letter on bees from the old place.—A. PETTIGREW.

THE CHLOROFORMED HIVE.

I HAD in December six fine full stocks, two of them Pettitt's bar hives and four straw, one of them 14 inches across. On examining my bees in February I found one of the bar hives dead, full of comb and honey, and only about fifty dead bees. I fed liberally with syrup for about three weeks, and five more prosperous-looking hives I never possessed. On each of the three small hives I have placed a large super, and to the bar hive I have added a 3-inch-deep bar box with a sheet of glass on the top. The last fortnight they have nearly filled the upper box with comb, and I suppose honey.

This hive was the one made from the three swarms I chloroformed in September last. I have had no swarm as yet (June 11th) from either of the five hives.—H. C.

OUR LETTER BOX.

FAILURE OF DUCKLINGS (*Aylesbury Pander*).—Monstrosities are more frequently met with among Ducks than any other poultry, but that would afford no explanation in this case. There appear to us only two probable causes for such misfortunes. If the eggs are set under hens and allowed to get very dry the young would all be exhausted and injured in their efforts to escape from the shell. If hatched under Ducks we must seek the cause in the feeding. Hard food is very bad for them just after hatching. Nothing is better than some oatmeal put in a shallow vessel with just sufficient water to float it. Where ducklings are hatched under Ducks they must not be allowed to go to the ponds. The old Duck takes them about into bad places, keeps them out too late seeking for flies and insects, and frequently leaves one behind. A hen with ducklings may be safely trusted with them at the water, as they remain on the brink where there is no danger. They also in this way pick up much food of the sort they require. The Duck part is always badly pitched with rough stones. The spaces between them are full of moisture. The ducklings delight to search these places, and do so to their benefit. If only one or two of your ducklings acted as you describe we should ascribe it to an injury sustained either by accident or wilfully from the hen or Duck; but that cannot be the case where all are alike affected. A hen with ducklings should be at liberty. Her brood do not understand scratching, and are often very much injured by a vigorous mother if she is in confinement. One might be killed daily in this manner till the brood disappeared, but the cause would soon be discovered.

RABBITS' EARS ULCERATED (*A. M. B.*).—This is caused by the Rabbits being kept in a confined and impure atmosphere. Dress the ulcers with sulphate or acetate of lead ointment, which you can procure from any druggist. Repeat the dressing till the cure is effected.

HEATHER AND LIME TREES (*A Killenny Bee-keeper*).—Lime trees flower before heather—the one in July, the other in August. Your bees, therefore, may be pastured on both. White clover is generally in flower before limes, and lasts till the heather begins to blossom. Lime trees do not continue long in flower, but the honey obtained from them is very clear with a rich aromatic flavour.

STRENGTHENING WEAK HIVES (*J. B.*).—"Having two hives of bees—No. 1 a very strong stock, and No. 2 a very weak one—I took each hive and placed them bottom upwards, and sprinkled them with syrup in which nutmeg had been grated. I then placed No. 2 on No. 1, and drummed on No. 1 for four minutes; then I placed them about 6 yards asunder. This was done

on the 29th of May, and they appear to be doing well. When may I expect swarms from these hives?" Answer: Hives should not be treated in this way. There are better ways of taking bees from strong stocks to strengthen weak ones. In the above experiment one or both queens may have been killed. If the queen of the strong hive run out of No. 1 into No. 2 one queen would be destroyed most certainly, and thus a greater loss than gain would result. The weak hive would be strengthened by the addition of bees; the strong one rendered almost worthless by the loss of its queen before it was ready for swarming. In the case mentioned drumming should not have been resorted to. When many bees of the strong hive were out it should have been removed out of sight to another part of the garden, and an empty hive placed on its stand. In about half an hour afterwards the weak hive should have been placed where the strong one stood, and thus a union would have been effected without risk of loss of queen. The placing the hives 6 yards asunder was right enough. We cannot say when your hives will swarm, or whether they will swarm at all this season. Examine both hives, and see if their combs are filled with brood.

ROYAL CELL. (*S. W. Fenn*).—There is a perfect royal cell attached to the bit of comb you have sent. The comb and cell are of this season's make, and the ragged edges of the cell indicate a queen has very recently come out of it.

PANS LINED WITH LEAD (*A. Boyle*).—They are dangerous if used either for milk or pickling pork.

GERMAN PASTE (*H. Buffham*).—Take 1 lb. of wheat flour or of pea-meal, 2 ozs. of fresh butter, 4 ozs. of brown sugar, three eggs boiled hard and chopped very small; put the flour or meal, with the butter, chopped eggs, and sugar into a wide saucepan over a slow fire, and keep stirring it to prevent its burning. When it gets dry continue stirring it until it becomes crumbly. When crumbly put a pint of cracked hempseed into the mixture, and mix well together. If burnt it is injurious to the birds. It will be good for months if kept in a dry cool place.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				
1878.	June.	Baromet- er at sea and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		Rain.
			Dry.	Wet.			Max.	Min.	In sun.	On grass	
We. 12		29.508	deg.	deg.	S.W.	deg.	deg.	deg.	deg.	deg.	
Th. 13		29.840	59.3	53.5	S.S.W.	55.9	55.9	48.6	113.0	44.6	0.078
Fri. 14		29.898	61.4	57.9	N.	56.0	59.4	50.7	116.2	47.9	0.406
Sat. 15		29.884	53.0	50.3	N.	56.2	56.5	49.1	73.2	50.5	
Sun. 16		29.821	53.9	49.4	N.W.	55.1	60.2	44.2	102.8	41.3	0.431
Mo. 17		29.848	55.8	53.0	N.	55.0	65.2	48.4	109.4	45.8	0.019
Tu. 18		29.904	56.6	53.6	N.W.	55.9	67.2	47.7	113.3	46.0	
			62.6	57.8	N.W.	56.6	69.0	51.7	111.4	48.7	0.018
Means		29.828	57.5	53.6		55.8	64.9	48.7	105.6	46.4	1.000

REMARKS.

- 12th.—Fair morning, very showery afternoon, fine evening, moonlight night.
13th.—Fine sunny morning, heavy hail shower 3.40 P.M., and continuous rain rest of the day.
14th.—Very dull and cold, but fair day.
15th.—Gloomy day; little sunshine at 5.30 P.M., dull but fair evening.
16th.—Fine morning, dull cloudy afternoon; thunderstorm in west from 1.40 to 2.40 P.M., rain after 6.30, but did not continue long.
17th.—Fine morning, slight shower at 1.40 P.M., fine afternoon and evening.
18th.—Very fine pleasant morning, cloudy and showery after 0.30 P.M.
Cold showery week, with frequent thunderstorms at various distances.—G. J. SYMONS.

COVENT GARDEN MARKET.—JUNE 19.

A CONSIDERABLE improvement has been experienced in our market, and all classes of goods have met with a more ready sale. Outdoor Strawberries have put in an appearance, but show evident signs of the miserable weather we are now troubled with. Early vegetables are lower.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.	
Apples.....	1	0	6	0	Melons.....	each	6	0	12	0
Apricots.....	dozen	1	0	3	Nectarines.....	dozen	12	0	24	0
Cherries.....	1	0	6	0	Oranges.....	100	3	0	10	0
Chestnuts.....	bushel	10	0	0	Peaches.....	dozen	12	0	30	0
Currants.....	1	0	0	0	Pears, kitchen.....	dozen	0	0	0	0
Figs.....	dozen	12	0	0	Pears, dessert.....	dozen	0	0	0	0
Fibers.....	1	0	0	0	Pine Apples.....	1	0	0	0	0
Gobs.....	1	0	0	0	Pine Apples.....	1	0	0	0	0
Gooseberries.....	quart	0	0	0	Raspberries.....	1	0	0	0	0
Grapes, hothouse.....	1	0	0	0	Strawberries.....	1	0	0	0	0
Lemons.....	100	6	0	0	Walnuts.....	bushel	5	0	8	0

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	0	0	0	Leeks.....	bunch	0	2	0	4
Asparagus.....	bundle	2	0	0	0	Mushrooms.....	pottle	1	6	2	0
Beans, Kidney forced.....	100	0	6	2	0	Mustard & Cress.....	punnet	0	2	0	0
Beet, Red.....	dozen	1	6	3	0	Onions.....	bushel	2	6	3	0
Broccoli.....	bundle	0	9	1	6	pickling.....	quart	0	4	0	6
Brussels Sprouts.....	1/2 sieve	0	0	0	0	Parsley.....	doz. bunches	2	0	0	0
Cabbage.....	dozen	1	0	3	0	Peas.....	quart	2	0	3	6
Carrots, new.....	bunch	1	0	1	6	Potatoes, frame.....	1/2 lb	0	0	0	0
Cauliflowers.....	100	1	6	2	0	Potatoes.....	bushel	3	6	7	0
Celery.....	dozen	3	0	6	0	Kidney.....	bushel	5	0	7	0
Celery, new.....	dozen	1	6	2	0	Radishes.....	doz. bunches	1	0	1	6
Cucumbers.....	doz. bunches	0	4	1	0	Rhubarb.....	bundle	0	6	0	0
Endive.....	each	0	4	1	0	Salsify.....	bundle	0	9	1	0
Fennel.....	dozen	1	0	2	0	Scorzonera.....	bundle	1	0	0	0
Garlic.....	bunch	0	3	0	0	Seakale.....	basket	0	0	0	0
Herbs.....	1/2 lb.	0	6	0	0	Shallots.....	1/2 lb	0	0	0	0
Lettuce.....	bunch	0	2	0	0	Spinach.....	bushel	2	6	0	0
	dozen	1	0	2	0	Turnips, new.....	bunch	1	0	1	6

WEEKLY CALENDAR.

Day of Month		Day of Week	JUNE 27—JULY 3, 1878.			Average Temperature near London.			Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
Month	Year		Day.	Night.	Mean.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	Days.	m. s.		
27	TH	Richmond, Romford, and Brockham Shows.	72.0	48.6	60.2	3 47	8 19	0 46	5 53	26	2 44	178			
28	F	Coronation Day.	75.3	49.3	61.2	3 47	8 19	1 19	7 2	27	2 56	179			
29	S	National Rose Show (Crystal Palace).	72.2	48.6	60.2	3 48	8 19	2 6	8 1	28	3 8	180			
30	SUN	2 SUNDAY AFTER TRINITY.	72.7	48.3	60.0	3 48	8 18	3 8	8 47	0	3 21	181			
1	M		72.3	51.7	62.0	3 49	8 18	4 25	9 20	1	3 32	182			
2	TU	Torbay, Clifton, and Horsham Rose Shows—Wimble-	73.3	51.5	62.4	3 49	8 18	5 50	9 44	2	3 44	183			
3	W	Maidstone Rose Show. [don Show.	74.3	50.7	62.5	3 50	8 17	7 17	10 3	3	3 55	184			

From observations taken near London during forty-three years, the average day temperature of the week is 72.9°; and its night temperature 49.8°.

AMARYLLIS GROWING MADE EASY.

VOUR contributors who plead for Amaryllis growing, and the majority of those to whom they plead, can have little idea what simple treatment suits this gorgeous plant, and how really magnificent it is when grown under rational treatment, or the necessity for pleading would be non-existent.

When I see apologies appearing year after year for these very tractable plants because they refuse to throw up foliage contemporaneously with flowers, I can but wonder when the alternate starving and feeding system, productive of such unsatisfactory results, will be entirely banished from our gardens. The Amaryllis needs no drying off; it should never be stinted with water; it needs no shade and no stewing. Contrary to the dictum of many growers it does sometimes need a larger pot than a 7-inch one; at any rate, if the said growers will undertake to pot some of my bulbs into that size I will engage to alter my system, although I have now followed it for some nine or ten years and have reason to be not a little proud of the results.

An Amaryllis flower without foliage I cannot admire, however fine in form or beautiful in colour. You may place it among your choicest-growing Ferns, or you may cut it and arrange it with other flowers and foliage, but it is not satisfactory—nothing will do but its own handsome leaves. Even those of another variety will not do, for there is a great diversity of foliage. Some leaves are bronzed almost like an *Alocasia metallica*, another variety has light green leaves with a mealy-like bloom as thick as that on well-grown Alicante Grapes, some are sickle-shaped, and some are nearly straight and erect; but whatever their characteristics they all seem to harmonise so thoroughly with their respective flowers that it is very plain to me they were intended to be produced simultaneously with them.

Those people who can admire a cut Rose dressed with Maidenhair Fern I daresay would not object to see the Amaryllis in a similar garb, and to them I have nothing to say, except that I do not consider it good taste. On the contrary, not only is it necessary to have a Rose leaf with a Rose bloom, but it is often necessary to be particular about the kind of leaf. The foliage of Madame Lacharme, although perfectly suitable to the flower of that variety, will not do along with one of *Triomphe de Rennes*, and probably the foliage of *Triomphe de Rennes* would not look quite the thing with any other flower but its own. It may be thought that it is only fancy, or only because we know certain Roses as much by their foliage as by their flowers, but it is nothing of the sort; a perfectly strange flower with unsuitable foliage, both of which may be very beautiful in their proper places, would offend the eye just the same. We could tell there was something wrong if we could not tell exactly what it was. The effect produced would be somewhat akin to that we should expect from seeing two people of opposite character—say a modern High Church cleric and a genuine navy dressed in each other's

clothes. But this subject of foliage, in relation to flowers must not tempt me further. I have endeavoured to show that it is necessary to have the right sort of foliage for certain flowers, and now I will try to prove that the Amaryllis can be flowered better and easier with foliage than it can without it.

I have more than a hundred plants, and I believe every one of them has flowered since last November, many of them more than once, and I only remember seeing one which had not ample foliage. They are unfortunately not named, but there are probably a dozen distinct varieties, crimson, scarlet, and scarlet and white predominating. A bright crimson variety, a single bulb, had two scapes over 2 feet high with six flowers on each scape at one time. A scarlet and white one measured 8½ inches across the mouth of its flower in a natural position. A scarlet and greenish white grows 3 feet 3 inches high and flowers abundantly; in fact they all grow and flower vigorously, but as I have no opportunity of visiting other places in winter or spring I have no chance of comparing mine with those grown by other people. Visitors here, however, have admired the size of my bulbs and flowers, and from what I read I am convinced that many who take more trouble than I do have a less amount of success.

The Amaryllis is nearly hardy, and probably would be quite so if we could persuade it not to start so early into growth. My plants are all outside and have had no protection since the beginning of the month; they did not even go through the ceremony of being hardened off, but were brought direct from a vinery when the Vines were beginning to shade them too much. They will remain outside till there is danger of severe frost in autumn, then to be taken into a cold house or pit; even a shed would do for a time. They are usually taken into a house where Strawberries and Roses are started in December or January at a temperature of 50° to 55°. Meanwhile, though they have never been stinted with water, they will have ripened thoroughly, even in a cold wet season like the last one, and most of them will have lost their foliage but not their roots; these will be as vigorous and fleshy as ever, and it will require but a very little excitement to start the flower scape. When the tip of this is just visible you may do anything with them except shading them. Let them remain where they are, or place them in the hottest house you have, it will make little difference except as to their time of flowering; the foliage will start growing immediately after the scape, and by the time the flowers appear all will be in proper proportion. The foliage of course must be taken great care of, and the later in spring it is produced the less trouble will it be.

From what I have said I think it will easily be seen that those who have a vinery or greenhouse could easily grow Amaryllises better than three parts of the people now grow them in hothouses; and be it remembered my vineries are not hothouses, 55° being the average minimum temperature for all Grapes, including Muscats, till after the flowers are set. The Amaryllis does not often need potting, once in two or three years is sufficient, but it must have rich lasting food; turfy loam, half-inch bones, and a little

charcoal suit it well. The roots should be disturbed as little as possible, and should never be checked in any way.—**WILLIAM TAYLOR.**

THE VINES AT CHISWICK.

I OBSERVE in your note on page 429 that the Grape crops at Chiswick are unusually fine this season, and that Mr. Barron attributes the striking improvement in the Vines to copious supplies of water. On this point I would like to remark, that from experience and observation gathered from practising in the very wettest and the very driest of districts, I feel convinced that in districts where the rainfall does not exceed 36 inches per annum Vines rarely ever get as much water at the root as is good for them, and have far too much supplied to the atmosphere of the vineries by sprinklings. Where the drainage of Vine borders and the soil are as they ought to be I have never known Vines suffer from too much water in their growing season, and have known them get 6 feet of rain in the year, besides artificial waterings in inside borders amounting to even more than 6 feet.

While referring to the subject of Vines I should also like to remark that I fear your correspondent "KITCHEN GARDENER" (page 441) leaves Scotland and the north of England out of his range of vision when he so confidently advocates the growth of Grapes without any fire heat. Scotland is not so very inconsiderable in Grape culture now-a-days. I fear, however, if Grape culture were attempted in unheated houses it would soon be a thing of the past, except in some favoured spot in exceptionally fine seasons. It would be well in advocating such conditions for Grape culture not to recommend their application to the whole country, for in the greater part of the north, and I suspect the north-west of Ireland as well, it is calculated to mislead when such unqualified recommendations are so confidently urged.—**D. THOMSON, Drumlanrig.**

NOTES ON ROSES.

I SHOULD strongly doubt the truth of a recent statement that Sénateur Vaisse is "a seedling from Général Jacqueminot." I should say he has nothing of the Jacqueminot strain. Sénateur Vaisse came out in 1859 (Guillot père), and the seed of a particular Rose will produce the same Rose unless, either by Nature or by Art, it has been hybridised. John Hopper seems a special favourite with this writer. "We have got," he says, "one first-class English Rose of pre-eminent beauty and fulness, though it bears the somewhat prosaic and plebeian name of John Hopper." This is rather strong. The Rose is a very excellent one, though not to be trusted for exhibition. But how about Devoniensis, and Cheshunt Hybrid, and Duke of Edinburgh, and Prince Arthur, and the Laxton strain? and so I might go on. Our English-raised Roses are now, very generally, the best in the new catalogues. He goes on, however, to tell a pretty story about the origin of his favourite, which, to me at any rate, is entirely new. "A poor market gardener and floriculturist in the eastern counties for years carried on a series of experiments in Rose culture, the cost being supplied by a patron in the shape of a well-to-do tradesman in a neighbouring county town. At last the Rose in question made its appearance, and in gratitude and by way of compliment to his patron, who was the means of enabling the producer to realise a little fortune, it was after him christened John Hopper." The writer remarks further, and certainly with much truth, that Rose fanciers, like the Athenians of old, "are always yearning for something new." He then indicates a real want—"not merely a rich creamy yellow, but a true yellow, like the Persian yellow double Briar." The double Provence, sometimes called the Burleigh, is still the only really good colour of this class which has any decent substance. We are also told a curious fact. "So great is the present mania for Roses that it is calculated the public spend at least £100,000 per annum in this popular flower." The article ends with a lament that "the Rose of all flowers most keenly resents the smoky atmosphere of our metropolis." I am not quite sure that this is altogether the case. We shall soon see. One of the Secretaries of the National Rose Society has taken town-bred Roses under his special protection. The schedule of the Society for the great Show to be held at the Crystal Palace on June 29th (Class 13) shows a prize of plate, besides three other prizes, offered by E. Mawley, Esq., for "Roses grown within eight miles of Charing Cross," and the number is limited to six, which should really stir up suburban gardeners.

How much now depends on the weather? and how many hours of sunshine have been registered lately? Cucumbers have been defined as "bottled sunbeams." It is much to be wished that the patent for extracting sunshine from them should soon be at work. Perhaps in these days, when they bottle up our conversation, even such a process need not be utterly despaired of, otherwise with such sunless summers we shall be having the first prizes go, as last year at the Crystal Palace, to Roses under glass. There is a grim pleasantry in the concluding sentences of our contemporary:—"June has hitherto been but a dull month, but lovers of the Rose have an advantage over other persons in that they can console themselves with the consciousness that a hot sun is an enemy to their favourites!" "There is a medium between painting the face and not washing it."—**A. C.**

P.S.—I think the suggestion of "A LOVER OF ROSE SHOWS" (page 461) a very excellent one, and shall be happy to give any Roses I may have at the National Rose Show at the Crystal Palace on June 29th for any hospital to any properly authorised person. Apply at 5.45 P.M.—**ALAN CHEALES.**

BLACK JAMAICA PINE APPLE.

AFTER an extensive acquaintance with this Pine Apple I have come to the conclusion that it is the best Pine in cultivation. The fruit does not grow very large, as it seldom exceeds 4 lbs., and very often averages between 2 lbs. and 3 lbs.; but it does not take a large-sized fruit to weigh this, as there is no Pine weighs heavier for its size than the Black Jamaica. It does not produce so many leaves as the Queen, consequently it can be grown in less space, or I might say three Jamaicas can be grown in the space required for two Queens. It is not at all a shy fruiter, as it generally fruits at from fifteen to eighteen months old. It also produces suckers much freer than the Smooth-leaved Cayenne. The most notable part of the Jamaica, however, is the fruit. The flesh is always exceedingly firm, more so than any other. Under ordinary cultivation it is very juicy, and the flavour is so rich as to exceed all others in either winter or summer. We are sometimes complimented on our Pines, and this is always after a Jamaica has been sent to the table. In many places the Jamaica is only grown as an odd sort, but it deserves more than this, and, in addition to the qualities named, it will keep longer than any other kind after it is ripe.—**A KITCHEN GARDENER.**

FRUIT PROSPECTS.

THE appearance of the fruit trees here in the early part of the season was most promising for an abundant crop of fruit of everything excepting Pears, which had but a scanty show of blossoms. Apricots, which were in bloom about the middle of March, suffered much from the severe frosts from the 22nd to the 25th. On the 24th there was a severe frost and snow-storm, followed by a heavy rain, and the following morning the trees were covered with a sheet of ice. Those protected suffered equally with those unprotected, and from 150 yards of wall I do not think there will be ten dozen of fruit. Peaches and Nectarines protected and unprotected are a good crop, but best where protected by coping boards as well as nets. Cherries are only partial; on north aspects a fair crop; Morellos especially good. Plums, particularly Green Gage and Victoria, an enormous crop; other kinds good, but not so heavy as the two before-named. Standard Plums, more particularly Prince Englebert, Pond's Seedling, Orleans, Yellow Magnum Bonum, and Golden Drop, a fair crop. Damsons a failure. Gooseberries a very light crop, but making up in size; some Warringtons on the north side of the wall the best. Currants, both Red and White, good; Black a heavy crop. Raspberries looking remarkably well, and Strawberries most promising. Standard Apples in some positions good, in others only a tenth of a crop. Bush Apples better than has been known for years. The Apples which have the best crops are Hawthornden, Blenheim Orange, Sturmer Pippin, Kedleston Pippin, Lord Suffield, King of the Pippins, Court-Pendu-Plat, Braddick's Nonpareil, Forge Apple, Quarrenden, Winter Nonesuch (?), Cox's Pomona, and several others which I have not had an opportunity of testing, as I found them named when I came here. I must not omit to mention that Dutch and Keswick Codlins are good both as standard and espalier. Amongst Pears Marie Louise on the walls, Jersey Gratioli, Beurré d'Amanlis, and Williams' Bon Chrétien are the most prolific.

Caterpillars have been very destructive to the foliage of

both Pear and Apple trees, but the trees are now recovering from their ravages. Taking the fruit crop altogether it is the best that has been seen at this place for several years. The heavy rains are acting very beneficially to all trees, causing them to make abundance of clean healthy foliage, and should it be a good season for ripening the fruit and wood I anticipate a satisfactory exhibition of fruit.—J. GADD, *Thorndon Hall, Essex.*

YORK FLORAL FÊTE.

JUNE 19TH, 20TH, AND 21ST.

YORK was *en fête* last week. The ancient city held its festival of flowers. For a number of years flowers and fruit have formed the chief feature of an entertainment which has been enjoyed by vast numbers—all classes in the city patronising a gathering which in all respects is so worthy of their patronage, and dwellers in the adjacent towns and district giving also their countenance and support to an enterprise which affords them so much real pleasure and wholesome relaxation from the sterner duties of life. The floral *fête* is evidently a holiday which has the sympathy of the citizens, for in streets far distant from the Show ground flags were plentifully displayed in honour of the occasion. It is not a matter of surprise that flowers should be appreciated by the citizens, for York is, to a much greater extent than many large towns, a city of gardens. In all parts of the city trees abound—not in formal lines in the streets, boulevard fashion, and according to the order of an æsthetic municipal authority, but rather in that free, happy, English, informal manner, where individual taste is exercised in the planting of trees and flowers wherever soil below and light and air above have suggested sites that should be occupied in a manner that imparts both beauty and health to any populous district.

Where individual taste is thus reflected in a town it follows as a matter of course that public and official countenance should be given to that which is in all respects so beneficial—namely, the rendering of open spaces cheerful and attractive. The magnificent cathedral, now undergoing extensive repairs, is a pile not only of which the city but the nation may be proud, and its majestic proportions have fitting relief by the ample lawns and bold clumps of trees with which it is surrounded. Similarly, too, the churches in various parts of the city are rendered, as they always should be, cheerful and inviting by having their enclosures, be they ever so small, cared for and kept and cherished. Not at York do we find the churches surrounded with dilapidated gravestones at all angles, mossy and miserable, nor docks and nettles battling for supremacy, nor walks green and unkempt; no, at York all is happily different—smooth lawns, well tended evergreens, neatly kept flower beds and borders, and clean walks are the appropriate accessories to the several churches of the city, and their condition is such as to merit warm commendation.

The Show, or, as it is termed, "The Grand Yorkshire Gala, Floral, and Musical Exhibition," was held in the Bootham Field, an enclosure of 12 acres, contiguous to Bootham Gate, one of the arched entrances through the ancient wall. A glance at the arrangements of the tents told that a crowd was expected, not only by the ample space provided in the several marquees for promenade, but by the substantial barriers erected for the protection of the plants. Usually we find a few stakes inserted in the ground at intervals, and a length of rope stretched from stake to stake to preserve the plants, &c., from injury. Occasionally we have seen the fruit further protected by wire netting, an arrangement that is not pleasurably suggestive; but at York there was no caging of the fruit, and the protection was simply placed to preserve the collections from the crush and pressure of the thousands of visitors. The barriers were formed of stout posts firmly affixed in the ground, and from post to post stout battens 3 or 4 inches square were nailed, forming a continuous line of fencing throughout the tents strong enough to resist the rush of a bullock. Yet the appearance of the guards was not by any means clumsy, for the rails were first covered with white calico, then strips of blue were wrapped round the top rail diagonally and regularly, which quite took off the heaviness which otherwise would have been produced.

The tents in which the Exhibition was held were also correspondingly stout; they were also lofty and capacious. The central tent was a circular one, very large and lofty, and from this radiated five other marquees, each about 150 feet in length. The exhibits were principally arranged down the centre, with narrow tables also along the sides. One tent was devoted chiefly to fruit, Orchids, and cut flowers; another to Roses; a third to Pelargoniums and Fuchsias; a fourth to stove, greenhouse, and bedding plants; and the fifth to ornamental-foliated plants and Ferns. The centre of the large circular tent was occupied by the chief specimens of stove and greenhouse plants and exotic Ferns, and the sides by hardy Ferns. Provision was thus made for a great Show, and a great Show it was, but by no means a full one, for the officials had to regret what is so often, indeed far too often, the case—that much space was taken by exhibitors which they never utilised.

So much for the scope of the Show, now to its character. It was a Show of extremes. Some classes were exceedingly strong, others extremely weak. Very liberal prizes were offered in some of the classes, and it is noteworthy that where the prizes were the largest the competition was the smallest. For instance, in the open class for twenty stove and greenhouse plants, where the prizes were £25, £15, and £10, only one collection was staged—namely, by Mrs. Cole & Sons, Withington, Manchester. This was, no doubt, the result of excluding exhibitors in that class from competing in the classes for six and three plants. It is only just that local exhibitors should have a reasonable chance of securing a fair share of the honours at a local show; still it is clear that if grand specimens of hardwooded plants especially are required at York, inducements must be offered such as to warrant distant exhibitors bringing them. Local growers can and did stage softwooded plants admirably. Ferns and ornamental-foliage plants exhibited by "home" growers were very good indeed, Fuchsias were excellent, Pelargoniums splendid—equal in quality to the best exhibited at the Pelargonium Show in London, and greater in numbers, and bedding plants were staged as well if not better than we ever saw them exhibited. A "bid" was made for Messrs. Turner's and Paul's grand Roses, but the £20, £12, and £10 were offered too late. The Yorkshire gardeners, however, staged Roses in pots very creditably, much better indeed than any which have been exhibited in London this year. The season was too early for cut Roses, which were generally poor, and it must be added poorly set up. Fruit was an important feature of the Show; the display was one of the most extensive of the season, and many excellent collections were staged. Cut flowers, bouquets, epergnes, &c., were with one or two exceptions not superior. Such is the general character of the Show; we will next refer to some of the chief classes, making no pretensions to refer to the whole of the numerous exhibitors who were awarded prizes.

STOVE AND GREENHOUSE PLANTS.—The chief prize in the chief class was won as we have observed by Mrs. Cole & Sons. The twelve flowering plants consisted of three *Ixoras*, *I. Williamsii* having remarkably fine heads; three *Azaleas*—Mrs. Fry, *Magnificent*, and *Criterion*—well-bloomed pyramids 6 feet in height; *Erica* obbata, *Dracophyllum gracile*, *Allamanda nobilis*, *Franciscæa confertifolia*, *Statice profusa*, and *Hedera* *multiflora*; the eight foliage plants comprising three large *Crotons*—*Weismannii*, *variegatum*, and *angustifolium*—the latter a fine specimen in brilliant colour, *Pritchardia filifera*, *Cycas Normanbyana*, *C. revoluta*, *Dicksonia antarctica*, and *Latania borbonica*. Most of the plants were superior, and the collection was an excellent one. The principal prizes in the amateurs' classes were won by Mr. Noble, gardener to T. Fry, Esq., Woodburn, Darlington, with medium-sized, healthy, and well furnished specimens; J. Rhodes, Esq., and G. Talbot, Esq., Southfield, Burley, Leeds, who were placed in the order of their names. For six stove and greenhouse plants in bloom W. Dove, Esq., Crown Cottage, York (Mr. R. Berry, gardener), was first. A large specimen of *Rhynchospermum jasmynoides* was well flowered; *Clerodendron Balfourianum*, *Statice profusa*, and *Anthurium Scherzerianum* were also well grown. Mrs. Ringrose came in second, a large well-bloomed plant of *Lapageria alba* being noticeable in this collection.

FERNS.—In the central tent also there were grand collections from O. G. Wrigley, Esq., Bridge Hall, Bury (Mr. Hubbersty, gardener), and Mrs. Cole & Sons, who were awarded the prizes for eight plants in the order named. Mr. Wrigley's plants comprised four magnificent *Gleichenias* 6 to 8 feet high and through, *Davallia elegans* 4 feet, *D. Mooreana* 6 feet, *D. polyantha* 5 feet, and *Cibotium Schiedei* 4 feet in diameter. Mrs. Cole's plants were *Cyathea dealbata*, 7 to 8 feet spread of fronds, *Thamnopteris australasica*, *Cibotium Schiedei*, a fine specimen having a spread of 7 to 8 feet, *C. regale*, and three *Gleichenias*—*apellunæ*, *Mendelii*, and *rupestris* about 3 feet in diameter and in splendid condition; a collection of very great merit. The third prize in this class was won by Mr. Raper, gardener to J. Rhodes, Esq., Potternewton House, Leeds. In the class for four exotic Ferns Mr. Woods, gardener to A. Wilson, Esq., Anlaby Hall, won first honours with very good examples of *Dicksonia squarrosa*, *Adiantum concinnum latum*, 3½ feet, *Davallia Mooreana*, and *Gleichenia rupestris*. J. Rhodes, Esq., was placed second with more irregular specimens, and Mr. Cottam, gardener to Mrs. Ringrose, Cottingham Grange, Hull, third. For a pair of Tree Ferns the prizes went respectively to F. W. Tetley, Esq., Weetwood, Leeds (Mr. Eastwood, gardener), and W. Dove, Esq., Crown Cottage, York (Mr. Berry, gardener). The first-prize pair were *Cyathea dealbata* and *Cibotium princeps* with stems of about 4 feet and good heads. Hardy Ferns were numerous, and the specimen plants were very good yet by no means equal to the luxuriant examples staged at Manchester. In the class for twelve plants Mr. Scott, gardener to J. Buckle, Esq., York, was in the premier place with fresh and good specimens of *Osmunda regale cristatum*, *Scolopendrium vulgare crispum*, several varieties of *Athyrium*, *Polystichum* and *Lastrea*, and *Trichomanes radicans*. The second and third prizes were equally divided between E. J. Lowe, Esq., Highfield House, Nottingham, and Mr. Rodwell, Burton Lane, York. Amongst Mr. Lowe's plants *Athyrium Filix-femina* Lowii and *Lastrea Filix-mas* var. *cristata angustata* were

particularly striking. Mr. Rodwell had a good plant about 3 feet through of *Asplenium marinum*. For six plants J. Buckle, Esq., was again first, E. J. Lowe, Esq., second, and Mrs. Ringrose third; and for thirty-six plants Mr. Rodwell came in first, E. J. Lowe, Esq., second, and W. R. Robinson Esq., 102, Lowther Street, Groves, York, third. These were shown in a small state and contained many rarities. Lycopodiums were fairly fresh and good, but far inferior to the splendid cones exhibited at Reading and the large flat specimens staged at Manchester. The prizetakers at York were Messrs. Dove, Buckle, and Wilson.

ORNAMENTAL-FOLIAGED PLANTS.—These were admirably exhibited, first honours for eight plants going to Mr. Lazenby, gardener to Mrs. Pease, Darlington, with *Alsophila excelsa*, large; *Thrinax elegans*, very good; *Cycas circinalis*; *Croton majesticum*, 6 feet by 4; *C. Disraeli* nearly 5 feet high, fine; *Geonoma gracilis*, 4 feet; a *Dasyllirion* and a variegated *Yucca*. Mr. Fry had the second prize with a good collection, and Mr. Wilson the third, an extra prize being awarded to Mrs. Ringrose. In the class for five plants Mr. Winterbourne, gardener to T. Simpson, Esq., Bardon Hill, Weetwood, Leeds, was placed first, Mr. Wilson second, and Mr. Rhodes third, all staging meritorious collections. Mr. Wrigley was awarded an extra prize for a well-cultivated collection of *Sarracenias*, &c.

PELARGONIUMS.—These were both numerous and excellent, quite the best we have seen at any local show; indeed the Zonals were equal to the best exhibited in London, and the Shows and Fancies were also of remarkably good quality. In the class for twelve Show varieties Mr. May, Hope Nurseries, Bedale, won first honours with splendidly grown plants 3 feet in diameter, with luxuriant foliage and massive flowers in good colour; Messrs. Lazenby & Sons being second with smaller but good specimens, and F. W. Tetley, Esq., third. For six plants F. W. Tetley, Esq., came in first; Mr. J. H. Oliver, gardener to Miss Steward, Bishopthorpe, York, being a good second. F. W. Tetley, Esq., was again first for three, with capital examples of Mary Hoyle, Patroness, and Rose Celestial. T. Simpson, Esq., Bardon Hill, Weetwood, Leeds, was second; and Miss Steward third. In the classes for three and six Fancy varieties the first prize also went to F. W. Tetley, Esq., for splendid plants, foliage and blooms being alike excellent. Mr. H. May was a very good second; and Messrs. Lazenby & Sons third. The last-named firm won the chief prize in the class for nine French and English spotted varieties, such as Bridal Bouquet, Hiawatha, Triomphe de St. Maude, Lavinia, Duchess of Edinburgh, Lord Raglan, Mrs. Bradshaw, Digby Grand, and Huntsman. Double-flowering Zonals were well represented. The best lot of six came from Mr. R. Simpson, New Lane, Selby, the varieties consisting of Victor Lemoine, Imperator, C. Glijm, Madame Lemoine, Mons. R. Abel, and Madame Michael Buchner. They were sturdy specimens and well bloomed. Mr. A. Simpson, Heworth Nursery, York, was second; and Mr. Key, Clifton Nursery, York, third. For three double varieties F. W. Tetley, Esq., came in first with well-grown plants of Auguste Villaume, Madame Lemoine, and Emily Laxton. The class for six Zonals brought out a strong competition, the plants all being dwarf, large, healthy, and floriferous. The best three were Rose Rendatler, Princess of Wales, and Grand Duke, from F. Simpson, Esq. G. Talbot, Esq., was second; F. W. Tetley, Esq., third; and Mr. R. McIntosh, gardener to J. T. Hingston, Esq., Clifton, York, fourth. For six Nosegays the first and second prizes went to F. W. Tetley, Esq., and J. T. Hingston, Esq., who both staged splendid plants; while for three Zonals G. Talbot, Esq., came in first with well-bloomed specimens of Rosamond, Mrs. Gladstone, and Mrs. Tetley; F. W. Tetley, Esq., was second; F. Simpson, Esq., third; and J. T. Hingston, Esq., fourth. In the class for six plants the awards went to T. Simpson, Esq., F. W. Tetley, Esq., and J. T. Hingston, Esq., who all staged well-grown plants. The first-prize plants were 4 feet over, and were not more than a foot high from the surface of the pots to the level of the flowers. The Tricolor and Bicolor sections were plentiful in numbers and of the best quality. The first prize for the best three Tricolors went to Mr. J. Gibson, gardener to T. S. Lightfoot, Esq., Askham Bryan Hall, York, who had specimens of Mrs. J. Clutton, William Sandy, and Flambeau, nearly 3 feet over, and perfect in growth and colour. The other awards went to W. T. Walker, Esq., A. J. Cholmeley, Esq., Newton Hall, Rillington, and Mr. J. Hemmings, gardener to Mrs. Jackson, Pocklington. For six plants W. T. Walker, Esq., was first with admirably grown plants of Italia Unita, Countess of Craven, William Sandy, Charming Bride, Lady Cullum, and Lass o' Gowrie; and the second awards went to Mrs. Jackson; T. S. Lightfoot, Esq., and Mr. R. Simpson being equal third; and Mr. A. Simpson fourth. Bronze Zonals were both numerous and superior. In the class for six Mrs. Jackson came in first with well-developed plants of Reine Victoria, W. E. Gumbleton, Imperator, Maréchal McMahon, Vicar of Wakefield, and Earl of Rosslyn. Mr. R. Simpson was second; and T. S. Lightfoot, Esq., third. It is impossible to speak too highly of the admirable cultivation displayed by the several exhibits in those classes.

The FUCHSIAS made a central row down the Pelargonium tent, and were much better than we usually see them now-a-days, being

healthy well-bloomed pyramids 6 to 8 feet high, and 3 to 4 feet in diameter at the base. J. T. Hingston, Esq., was first with Rifleman, Puritani, Rose of Castile, Sir Colin Campbell, Queen of the Sea, and Arabella, all good sorts for specimens. Mr. Clark, gardener to Miss Wharton, Burton Grange, York, was a good second; and Mr. Duggleby, gardener to M. Varvill, Esq., St. Mary's, York, third.

ORCHIDS.—These were not exhibited in large numbers, but the first-prize half-dozen of O. O. Wrigley, Esq., Bridge Hall, Bury, were splendid examples of culture—the cream of the magnificent collection which won premier honours at Manchester, and which are enumerated in our report of that Show on page 444. Mr. Wrigley was also far in advance of other exhibitors in the class for three plants. Other successful competitors at York were J. Ritson, jun., Esq., Headingley, Leeds, and J. Rhodes, Esq.

ROSES.—Liberal provision for these was made in the schedule, and a considerable number of plants were exhibited—sufficient, indeed, to nearly fill one of the large tents. Mr. May, Hope Nurseries, Bedale, won the chief prize for twenty plants, Mr. Pybus, Ripon, being placed second with dwarf well-bloomed specimens 2 to 3 feet in diameter. For twelve in 8-inch pots the prizes went to Mr. J. Pybus, Mr. H. May, and Messrs. Jackson and Co., Cross Lane Nursery, Bedale, in the order named. For six in 8-inch pots Mr. J. Douglas, Daveygate, York, was first; F. W. Tetley, Esq., second; and J. T. Hingston, Esq., third, Miss Steward taking an extra prize. F. W. Tetley, Esq., was also first for three. The plants staged were highly creditable to the amateur cultivators, the blooms being fresh and fine, and the foliage healthy and clean. The date was evidently much too early for cut Roses, which, except in the case of the nurserymen's collections and the Teas staged in competition for Messrs. Cranston & Co.'s prizes, were poor. The best amateurs stand in the Exhibition was undoubtedly that of E. R. Whitwell, Esq., which won the first prize offered by the great King's Acre firm. The varieties were Belle Lyonnaise, Souvenir d'un Ami, Madame Hippolyte Jamain, Madame Berard, Jean Ducher, Maréchal Niel, Gloire de Dijon, Alba Rosea, Madame Bravy, Caroline Kuster, Madame Margottin, and the gem of the collection, Marie Van Houtte. The blooms were fresh and clean, and were arranged in a box covered with black velvet. E. Brooschott, Esq., had the second prize. Mr. Oldroyd, gardener to C. Grimston, Esq., Kilnwick Hall, Cranswick, Hull, was first for twelve Tea-scented flowers, and also for twelve Hybrid Perpetuals; and E. Brooschott, Esq., took the highest honours for eighteen, while A. Wilson, Esq., contributed the best twelve white and yellow blooms. In the nurserymen's classes the flowers were much better, yet by no means superior. For forty-eight single blooms Mr. H. May, Bedale, came in first, Messrs. Paul & Son, Cheshunt, second, and Mr. House, Peterborough, third. For thirty-six singles Messrs. Cranston & Co., Hereford, were first, Mr. H. May second, and Messrs. Paul & Son third. For twenty-four varieties, three trusses of each, Messrs. Paul & Son and Messrs. Cranston & Co. were placed equal first, and Mr. H. May third.

There was nothing noteworthy in the classes for bouquets and table decorations, the exhibits generally lacking elegance and refinement. Neither were the collections of cut flowers superior, except the first-prize stand of twelve varieties staged by Mrs. Cole & Sons, which was the best we have seen at any exhibition this year. It was composed of four bunches of *Ericas*, two of *Allamandas*, three of *Ixoras*, two of *Azaleas*, and one of *Anthurium Scherzerianum*. The same exhibitors secured chief honours in the class for six table plants with small and elegant examples of *Aralia Veitchii*, *Chamædorea elegans*, *Croton majesticum*, and *Cocos Weddelliana* (two). O. O. Wrigley, Esq., and A. Wilson, Esq., had the remaining prizes with excellent collections. There was considerable competition in this class, but the plants, except those in the winning collections, were much too large for table ornaments.

Bedding plants were wonderfully well exhibited by Mr. R. Simpson and Mr. Dove, who were awarded the prizes in the order named for sixteen varieties exclusive of Pelargoniums. The plants were exhibited in pans 2 feet in diameter, and were altogether excellent. Mr. Simpson also had the chief prize for an admirable collection of Alpine and herbaceous plants. Messrs. Backhouse and Son offered prizes for eight Tuberous Begonias. The plants were poor, and the first prize was rightly withheld by the Judges.

FRUIT.—The display was both extensive and excellent, but the dull season had left its mark on the Grapes, many of which were not well coloured, still it was the best exhibition of fruit that has this year been arranged, and occupied a length of 150 feet of staging. The coveted prize—the Veitch memorial medal and £5—for three bunches of Black Hamburgh Grapes was awarded to Mr. A. Ferguson, gardener to B. Shaw, Esq., Cowick Hall, Selby, with symmetrical bunches of about 2½ lbs., full, and well coloured, but containing many very small berries. Colour must at all times weigh strongly with judges, but for once we thought too much importance was attached to it. By far the better Grapes were those exhibited by Mr. Westcott, gardener to the Duke of Cleveland, which were regular in size, very fine in berry, and "hammered;" they were, however, not quite black, while those that

superseded them were black, but smooth and glossy, and several of the berries were little larger than Marrowfat Peas. It was no doubt a difficult class to judge, and Messrs. Hunter of Lambton and Henderson of Thoresby were long in deciding, and could only get out of the difficulty by granting Mr. Westcott an extra prize. There were seven competitors in the class.

In the class for six varieties of fruit eight good collections were staged, the prizes being awarded in the following order:—First, Mr. Gilbert, gardener to the Marquis of Exeter, Burghley Park, Stamford; second to Mr. McIndoe, gardener to J. W. Pease, Esq., M.P., Hutton Hall, Guisborough; and third to Mr. Bannerman, gardener to Lord Bagot, Rugeley. Mr. Gilbert's collection comprised two good and well-ripened Pines, good Black Hamburgh and very large bunches of Trebbiano Grapes, a splendid York Herald Melon, and large and well-coloured Royal George Peaches and Elruge Nectarines. The Grapes in Mr. Pease's collection were very fine—4-lb. bunches—but not well coloured, and the fruit of Read's Scarlet Melon was very handsome. In the third-prize collection the Peaches and Nectarines were excellent. In the class for four dishes nine collections were staged, and of such equal merit were those belonging to Mr. J. W. Pease and Lord Bagot that the first and second prizes were added together and divided between them. The collections consisted of excellent Grapes, Melons, and Peaches and Nectarines. Mr. Woods, gardener to A. Wilson, Esq., Anlaby Hall, was awarded the third prize. The best three Queen Pines came in the following order—from Mr. Lettis, gardener to the Earl of Zetland, Upleatham; Mr. Noble, gardener to T. Fry, Esq., Woodburn, Darlington; and Mr. J. H. Clayton, gardener to J. Fielden, Esq., Grimston Park, Tadcaster. The black Grape class was a very good one, and here the Duke of Cleveland came in first with small but remarkably well-finished bunches of Black Hamburgh. The next came from Mr. Allsop, gardener to Lord Hotham, Dalton Hall, Hull; and the third-prize lot from C. A. Thelluson, Esq., Brodsworth Hall, Doncaster. Lord Hotham came in first in the corresponding class for white Grapes with a beautifully ripened dish of Buckland Sweetwater; Muscat of Alexandria from Mr. J. A. Todd, gardener to T. H. Preston, Esq., Moreby Hall, York, coming in second; and J. W. Pease, Esq., third with good bunches of the same variety quite green. For a single dish of new Grapes J. W. Pease, Esq., was first with Madresfield Court; the Marquis of Exeter second with Golden Queen; and Lord Bagot third with Dr. Hogg. Peaches and Nectarines were excellent. For Peaches the Duke of Cleveland was first with Dr. Hogg; Mr. G. Purdy, gardener to J. T. Leather, Esq., second with Grosse Mignonne; and Mr. R. Taylor, gardener to Sir J. Ramsden, Bart., third. The Marquis of Exeter sent the best dish of Nectarines, a well-coloured sample of Elruge; Lord Bagot the second, a capital dish of Down-ton; and the Earl of Zetland the third—Stanwick. In the class for Scarlet-fleshed Melons the Marquis of Exeter was first with York Herald, a deep-fleshed plant of good quality and nicely netted; Mr. J. Atkins, gardener to Col. Loyd Lindsay, Lockinge Park, Wantage, second with Read's Scarlet-flesh; and F. W. Tetley, Esq., third with Hero of Bath. Mr. J. Clarke, gardener to the Marquis of Ripon, sent the best green-fleshed variety, the Rauceby Hall of splendid quality; J. W. Pease, Esq., the second best, a beautiful fruit of Golden Gem; and the Marquis of Exeter third. Lord Bagot was first with Figs, showing the Lambton Castle Seedling; and C. A. Thelluson, Esq., first for Strawberries with a very good dish of Sir J. Paxton. Sixteen brace of Cucumbers were exhibited, the chief prize going to the smallest—a new variety named Verdant Green, raised and exhibited by Mr. McIndoe, gardener to J. W. Pease, Esq. It is the result of a cross between Telegraph and Monro's Duke of Edinburgh, and most resembles the latter. It is an excellent table fruit about 15 inches long.

The Show was well managed by Mr. Wilson, the industrious Secretary, and an active Committee, and the prize cards were affixed with great promptitude.

SELF-REGISTERING FLOWER POTS.

FREQUENTLY after potting a new plant, or cutting, or seedling, especially if it has a long name, and that besides the date may be worth noting, I find it inconvenient to have new labels to hand (and old ones until washed and repainted are worthless), and have adopted the expedient of writing the name and anything I wish to remember on the side of it. This has suggested to me the idea at the top of these few lines for want of a more accurate description. Gardeners are generally hurried, and if they are not at this season they ought. Would it not, then, be a great convenience if, instead of looking for metal, galvanised iron, zinc, or wood labels, one had nothing to do but pencil the name, &c., along the side of the pot? What a saving of time, labour, convenience, and it may be of patience and future possible annoyance, this would be!

But then I may be asked what I would suggest. I am not sure if the idea is fully practicable or has already been adopted;

if not, then some of your readers may make a fortune by it. But seriously, could not Japan or some suitable composition be used to mark a space around the middle of a pot, and a suitable marking pencil be procured? The Japanning could be washed without injury and re-marked for a new plant as before, thus relegating dirt, labels, and bad printing among things obsolete.—W. J. M., *Clonmel*.

ALEXANDRA PALACE ROSE SHOW.

JUNE 22ND.

FORTUNATE in having a brilliant day, an immense number of visitors assembled at the Palace on Muswell Hill to inspect, criticise, and admire the Roses arranged in the Concert Hall. No place in England is better adapted for a Rose show than the Hall in question, provided the day is sunny. The light is then just sufficiently subdued to show the blooms to great advantage and is also regularly diffused; the room is also deliciously cool, which preserves the freshness of the Roses until the close of the Show.

We did not expect to find an exhibition at all equal to the superior shows of the past two years, as the date, considering the cold sunless season, was too early, especially for the Manettis, which usually yield the finest yet the latest blooms. But although not equal to the display of last year, still the Show was a good one; indeed, many were the expressions of surprise both as to its extent and excellence; quality, however, decidedly preponderated over magnitude. Mr. C. Turner and Mr. Cant, who had both entered in several classes, were unable to compete in consequence of heavy hailstorms having injured their blooms, but most others of the old exhibitors both among nurserymen and amateurs were well represented, and a few new competitors shared in the honours of the day. The Show was well managed by Mr. J. S. Cooke, one of the Palace officials.

The schedule was divided into three sections, five classes being provided for nurserymen and six to amateurs, four prizes being awarded in each class; the remaining nine classes were "open."

NURSERYMEN.—In Class 1, for seventy-two single blooms, there were four competitors, who were awarded the prizes in the following order—First, Messrs. Paul & Son, Cheshunt; second, Messrs. John Keynes & Co., Salisbury; third, Messrs. Curtis, Sandford, and Co., Torquay; and fourth, Messrs. Mitchell & Sons, Uckfield. The Cheshunt Roses were remarkably fresh and fine, and were considerably in advance of the other collections. The following were the varieties—Annie Wood, splendid; Abel Grand, really grand; Marie Baumann, excellent; Henri Ledechaux, fine; Fisher Holmes, Elie Morel, Charles Rouillard, Madame Victor Verdier, François Michelin, Souvenir d'un Ami, Olivier Delhomme, Comtesse de Serenye, good; Duke of Teck, Madame Hippolyte Jamain, Beauty of Waltham, very fine; Mdle. Marie Finger, Paul Verdier, Jean Ducher, remarkably good; Madame Prosper Langier, Marguerite de St. Amand, Madame Gabriel Tournier, coarse; Centifolia Rosea, a beautiful bloom; Madame Lacharme, fine; E. Y. Teas, very good; Princess Beatrice, fine; Mdle. Marie Rady, Etienne Levet, Ferdinand de Lesseps, Clotilde Rolland, Souvenir de la Malmaison, Mrs. Baker, Niphotos, Prince de Portia, Duc de Morny, Xavier Olibo, Capitaine Christy, Madame Clemence Joigneaux, Eugene Verdier, fine; Duke of Edinburgh, Devonensis, Victor Verdier, Rubens, very large; John Hopper, Marquise Adelaide de Murinais, flat; Duchesse de Caylus, Edouard Morren, Nardy Frères, Emily Laxton, Camille Bernardin, Cheshunt Hybrid, La France, Mrs. C. Wood, Dr. Hogg, rich claret; Madame Willemoz, Marquise de Castellane, Charles Lefebvre, splendid; Duchesse de Vallombrosa, very good; Sénateur Vaisse, Madame Caillat, Général Jacqueminot, Miss Poole, Devienne Lamy, Sultan of Zanzibar, Duchess of Edinburgh, Madame Nachury, Mrs. Laxton, good; Marchioness of Exeter, fine; Horace Vernet, Lælia, Madame Treve, and Mrs. G. Paul. The darker colours were very rich in this excellent collection, and the lights pure and clean. The best of the Salisbury Roses were Marquise de Castellane, Général Douai, Alfred Colomb, Charles Lefebvre, and John Hopper. The Torquay collection, which was a remarkably close third, contained splendid blooms of François Michelin, Madame Hippolyte Jamain, Le Havre, La France, Madame C. Wood, and Camille Bernardin, but the remaining blooms were small. Many of the Uckfield Roses had been considerably injured by adverse weather.

In the class for forty-eight triplets only two collections were staged, Messrs. Keynes winning first, and Messrs. Paul and Son, Cheshunt, second honours. They were not at all easy to judge. Freshness was pitted against size, and freshness won. It is not necessary to enumerate the varieties, for the best were those specially noted as superior in the preceding class. The next was a much better class—namely, twenty-four Hybrid Perpetuals, three trusses of each. Five very good collections were staged, and the prizes went as follows:—First to Messrs. Cranston & Co., King's Acre Nurseries, Hereford; second, Messrs. Paul & Son; third, Messrs. Keynes & Co.; and fourth, Mr. G. Cooling, Bath. The Hereford blooms were very fine throughout, the best, however, being Beauty of Waltham, La France, Madame

Furtado, Louisa Wood, Annie Laxton, Miss Hassard, Marquise de Castellane, Maurice Bernardin, Duke of Edinburgh, and Comtesse de Serenye. The Cheshunt collection was a very close second. Sultan of Zanzibar was very rich, and highly superior were Mrs. Laxton, very close and symmetrical; Mons. E. Y. Teas, La France, Princess Beatrice, Annie Laxton, Madame Lacharme, and Duchesse de Vallombrosa. The notable blooms in the Salisbury collection were Etienne Levet, La France, Marquise de Castellane, Alfred Colomb, Marguerite de St. Amand, splendid; and Fisher Holmes. Very fine in the Bath contingent were Star of Waltham, Duc de Rohan, almost black; Madame Victor Verdier, and Charles Lefebvre.

In the class for twenty-four single blooms seven collections were staged, all of them containing many good Roses. Messrs. Cranston & Co. fairly won first honours with Louisa Wood, Comtesse de Serenye, Marie Baumann, Madame Fillion, Madame Furtado, Mdle. Eugénie Verdier, Madame Lacharme, Madame Ferdinand Janin, L'Esperance, Charles Lefebvre, fine; Souvenir d'Elise, a charming bloom; Annie Laxton, excellent; Duke of Edinburgh, Madame Laurent, Souvenir de la Malmaison, Marquise de Castellane, Horace Vernet, Devoniensis, Exposition de Brie, Duchesse de Vallombrosa, La France, Maurice Bernardin, Comtesse d'Oxford, and a very fine Lælia. Messrs. Curtis, Sandford, and Co. were second; Mr. G. Cooling, Bath, third; Messrs. Keynes and Co. fourth; an extra prize being awarded to Mr. W. Rumsey, Joyning's Nursery, Waltham Cross, who all staged fresh collections, but many of the blooms were deficient in size.

We now come to the class for twelve Tea-scented or Noisette Roses, in which there was excellent competition, and the seven collections staged attracted much attention. Messrs. Mitchell and Sons won first honours with an admirable stand, most of the blooms being of great substance and very pure. They were Maréchal Niel, Comte de Paris, Devoniensis, Souvenir d'un Ami, Jean Pernet, Souvenir de Paul Neyron, Elise Sauvage, beautiful; Duc de Magenta, a charming bloom; Madame Margottin, Adam, Marie Van Houtte, and Joséphine Malton, flesh suffused with pink, a fine bloom and very beautiful. Messrs. Paul & Son, Cheshunt, had the second place with Cheshunt Hybrid, very fine; Alba Rosea, Madame Berard, a lovely bloom; Marie Van Houtte, equally charming; Narcisse, Niphetos, Perle de Lyon, Souvenir d'un Ami, and Catherine Mermet. Messrs. Cranston & Co. were third, and Messrs. Keynes fourth; but many of the blooms were more or less injured and discoloured.

AMATEURS.—In the class for forty-eight single blooms five collections were staged, the prizes going in the following order:—First, R. N. G. Baker, Esq., Heavytree; second, T. Jowitt, Esq., The Old Weir, Hereford; third, Joseph Davis, Esq., Wilton, Wilts; and fourth, John Hollingworth, Esq., Turkey Court, Maidstone. Mr. Baker's blooms were fresh, bright, and had good foliage; but the celebrated amateur is not yet in his best form, several of the Roses being small. The finest blooms were Mons. E. Y. Teas, Madame Victor Verdier, Charles Lefebvre, Baronne de Rothschild, and Princess Beatrice. The lights—Marquise de Mortemart, large and flat; Madame Caroline Kuster, Madame Hippolyte Jamain, Madame Lacharme, Madame Bravy, and Duchesse de Vallombrosa, greatly enhanced the attractiveness of the collection. Mr. Jowitt's blooms were generally smaller but very fresh, notably La France, Duke of Wellington, Marguerite Brasseur, Marie Baumann, Etienne Levet, and Mons. E. Y. Teas. The gem of Mr. Davis's collection was Marie Van Houtte; Marquise de Gibot, Sir Garnet Wolsley, and Sénateur Vaise were also very good. Five collections were also staged in the class for thirty-six single blooms, and J. L. Curtis, Esq., Chatteris, Cambridgeshire, won the first position with blooms remarkably bright, but rather small and admirably set up. The best were Mons. Noman, Jean Cherpin, Horace Vernet, La France, Marie Baumann, Marie Van Houtte, Duke of Wellington, Etienne Levet, Ville de Lyon, Devoniensis, Mdle. Marie Rady, and Mons. Furtado, all lovely three-quarter-expanded blooms. In this class Mr. Curtis achieved a feat which places him in the front ranks of exhibitors, for he was followed by Mr. Baker and Mr. Jowitt, who were respectively awarded the second and third prizes, the fourth going to J. Hollingworth, Esq., Turkey Court, Maidstone. In the next class for twenty-four triplets Mr. Hollingworth was placed first and Mr. Joseph Davis second. The collections were almost equally good, but the blooms were irregular. Six collections competed in the class for twenty-four singles. John Edwards, Esq., Stisted Rectory, Braintree, was first with an excellent collection, but some of the blooms were too much expanded. The cream of the stands were La France, Devoniensis, Maurice Bernardin, grand bloom; Charles Lefebvre, wonderfully rich in colour; and Marie Baumann. John Sargent, Esq., High Street, Reigate, had the second prize with a capital stand containing splendid examples of Maurice Bernardin, Mons. E. Y. Teas, Charles Lefebvre, La France, Marquise de Castellane, Comtesse de Serenye, and Comtesse d'Oxford. Mr. Ridout, gardener to T. B. Haywood, Esq., Woodhatch Lodge, Reigate, was placed third with a collection containing the best blooms of Emilie Hausburg and Sénateur Vaise in the Show, also good examples of John Hopper, La France, Madame Victor Verdier, and Charles Lefebvre. Rev. E. L. Fellowes, Wimpole

Rectory, Royston, had the fourth prize, the Rev. J. B. M. Camm, Maurice Bernardin, and Auguste Rigotard being excellent in this collection, and an extra prize was awarded to J. Graveley, Esq., Cowfold, Sussex, La France, Rubens, and Anna Ollivier being in superb condition.

In the class for twelve single blooms eleven collections were staged—nearly all of them good, and some very fine. John Edwards, Esq., won the chief prize with a capital stand containing Charles Lefebvre, remarkably rich; Marquise de Castellane, large and good; John Hopper, Maréchal Niel, fine; Marie Baumann, splendid; Souvenir d'un Ami, Paul Verdier, Capitaine Christy, Thomas Mills, Niphetos, lovely; Etienne Levet, fine; and La France. Mr. Ridout had the second place with a collection of nearly equal merit, in fact only two points behind the other. Charles Lefebvre was splendid, and excellent also were Madame Victor Verdier, La France, Marquise de Castellane, and Comtesse d'Oxford. Third honours went to J. Wakely, Esq., Church House, Rainham, with some massive blooms of Hippolyte Jamain, Xavier Olibo, Princess Beatrice, and Duke of Wellington. The remaining blooms were too much expanded. J. H. Pemberton, Esq., The Round House, Havering-atte-Bower, Romford, had the fourth prize, Beauty of Waltham being the best bloom; and an extra prize was awarded to Rev. E. L. Fellowes.

We now arrive at the last of the amateurs' classes, and certainly one of the best—namely, the class for twelve Tea-scented and Noisette Roses. Ten collections were staged, and a charming effect they produced. It is true that several blooms were more or less soiled and had their outer petals damaged, still, considering the earliness of the Rose season, the class was an excellent one. That good grower, John Hollingworth, Esq., won the first position with Devoniensis, Madame Willermoz, Perle de Lyon, Julie Mansais, Souvenir d'un Ami, Madame Margottin, Comte de Paris, Perle des Jardins, Niphetos, Cheshunt Hybrid, Madame Bravy, and Marie Van Houtte, all except the last named, which was injured, being in admirable condition. Mr. G. Rushmore, Tending Hall, Stoke, Colchester, had the second prize, Rubens in this stand being splendid, the remainder somewhat injured. G. Agate, Esq., Colney Hatch, Middlesex, was placed third with regular and good blooms but rather soiled; the fourth prize going to C. Davis, Esq., Grammar School, Aynhoe, Banbury. Perle des Jardins was charming in this stand; Bouquet d'Or, very pretty; and Ma Capucine, distinct by its deep coppery colour; Anna Ollivier exhibited by J. Mayo, Esq., Oxford, was unusually fine, perhaps the finest bloom in the whole class.

OPEN CLASSES.—Six collections were staged in the class for twelve Roses of 1876, 1877, and 1878. Messrs. Paul & Son, Cheshunt, won the first position with Magna Charta, Oxonian, Madame Emma All, Mons. Gabriel Tournier, Madame de Montchateau, all coarse; Marchioness of Exeter, Mrs. Baker, Emily Laxton, Mrs. Laxton, Marie Louise Pernet, and Mons. Fillan, a little better, but by no means good. Messrs. Curtis, Sandford, & Co. had the second prize. Jean Liabaud was very rich, and Magna Charta and Mrs. Baker were fairly good; but the rest—Marquise Adèle de Murinais, Madame Louise Marger, Lady Mary Keith, Madame Ferdinand Janin, Madame de Montchateau, and Madame Prosper Langier were all coarse and unattractive. The third and fourth prize collections of Mr. Piper, Uckfield, and Messrs. Keynes were similarly devoid of merit. The best blooms in Mr. Piper's stand were Triomphe de France, Abel Carrière, Rev. J. B. M. Camm, and Duchesse d'Ossuna; and the best bloom in the Salisbury stand was Mrs. Baker. Not a good class. In the class for six blooms of any variety of 1876, 1877, or 1878, Messrs. Paul and Son, Cheshunt, won first honours with Mrs. Laxton—neat, close, and symmetrical, but a trifle dull in colour, yet a promising Rose. Mr. Piper was second with Duchesse de Vallombrosa, and Messrs. Curtis, Sandford, & Co. fourth with Duchesse de Vallombrosa.

In the class for eighteen English-raised Roses in commerce Messrs. Paul & Son, Cheshunt, were the only exhibitors, staging good blooms, but more or less injured, of Marchioness of Exeter, John Hopper, Princess Beatrice, Miss Poole, Star of Waltham, Oxonian, Miss Ingram, Dr. Hooker, Beauty of Waltham, fine; Miss Hassard, Duke of Edinburgh, Emily Laxton, J. S. Mill, Devoniensis, Cheshunt Hybrid, Annie Laxton, Mrs. Laxton, and Magna Charta. They were awarded the first prize; and also for twelve English-raised Roses with an admirable stand of Sultan of Zanzibar, Charles Darwin, rather coarse; Oxonian, Prince Arthur, Miss Ingram, Robert Marnock, Annie Laxton, fine; Marchioness of Exeter, Mrs. Laxton and Emily Laxton, both very good; and Dr. Hogg, a medium-sized, symmetrical, and very richly coloured bloom, for which a first-class certificate was awarded. The foliage of this Rose was also fine and very round.

In the class for twelve trusses of La France Messrs. G. Paul and Son were first with magnificent blooms, and Messrs. Keynes second also with a splendid stand. Messrs. Keynes were also first with Marie Baumann with blooms of wonderful substance and much mottled; Messrs. G. Paul & Son second with smaller but excellent blooms of this good Rose. Mr. Cooling, Bath, won chief honours with twelve blooms of Maréchal Niel, one of which was magnificent; it was nearly 7 inches in diameter, of handsome shape and good colour. This was quite the premier bloom

of the Show. For twelve blooms of Etienne Levet Messrs. G. Paul & Son won the chief prize with an excellent stand.

MISCELLANEOUS.—Foremost to notice are the two fine new Roses of Messrs. Wm. Paul & Son, Waltham Cross—Countess of Rosebery and Duchess of Bedford. This stand almost created a sensation, the former Rose especially being generally admitted to be one of the most promising Roses of recent years. It is undoubtedly a Rose of sterling value, and may be popularly described as a greatly improved and much refined deep rosy or reddish-salmon Etienne Levet. It is smooth, symmetrical, of great substance, and has handsome foliage. Duchess of Bedford is a rich velvety Rose, crimson suffused with scarlet, petals elegantly reflexed and waxy. It is of the Beauty of Waltham type, and is very rich and glowing. The renowned Waltham Cross firm also staged a great and good general collection of nearly one hundred varieties containing blooms equal to the best in the classes, and were highly commended. Mr. Rumsey and Mr. Mayo had extra prizes for charming collections of Tea Roses; and Messrs. G. Paul and Son had a similar honour for one hundred Roses in pots extremely sturdy and dwarf, many of the fine blooms not being more than 6 inches from the surface of the pots; yet the plants were grown in a free untrained manner—i.e., the shoots had not been depressed. Mr. T. S. Ware exhibited an attractive collection of Pinks, Carnations, and Pansies; and Mr. Cannell staged a fine assortment of cut blooms of Pelargoniums and Verbenas; Mrs. Hodgkins of Manchester also exhibited a beautiful collection of skeletonised leaves.

Under the general superintendence of Mr. Trendall all who had duties to perform in connection with the Show had every facility afforded them for discharging those duties pleasurably.

NOTES AND GLEANINGS.

THE LONDON INTERNATIONAL HORTICULTURAL EXHIBITION is now definitely fixed for 1880. The International Committee (Sir D. Cooper, Bart., Chairman) appointed a short time since to make the necessary arrangements for holding the Show met Lord Aberdare and some members of the Councils of the Royal Horticultural and Royal Botanic Societies on Tuesday last in conference, when, in view of the present depression in trade, the counter-attraction of the Royal Agricultural Society's Show in 1879, and the fact of the Antwerp Show falling also in 1879, it was decided by a large majority that the London Show should be deferred till 1880, the Committee in the meanwhile to take such preliminary steps in reference to securing a suitable site as might seem desirable with a view to more energetic action in the ensuing spring. Mr. T. Moore, F.L.S., is Honorary Secretary for the Exhibition, and Dr. Masters, F.R.S., was appointed Honorary Secretary for the Congress, which it is proposed to hold, as before, in connection with the Show.

FURTHER contributions of FLOWERS are much needed. Those possessing gardens and conservatories who can spare a few bunches of cut flowers will confer a real benefit upon the sick and suffering poor by sending a hamperful occasionally. It is a great help when the flower holders that require it have wool attached for tying them to the bouquets; and it may perhaps also be well again to remind country readers that nearly all the leading railway companies will now forward hampers at a reduced rate of charge if they are plainly labelled "For the Bible Flower Mission." Friends will also kindly bear in mind that all parcels should be carriage paid and despatched so as to reach us by Tuesday forenoon. They should be addressed to Mrs. Barnardo, "Bible Flower Mission," Deaconess House, 1, Oliver's Terrace West, Bow Road, London.

AN INTERNATIONAL EXHIBITION OF ROSES is to be held in Antwerp on the 14th and 15th of July, organised by the Cercle de Roséristes d'Anvers. Schedules and programmes can be obtained of Mr. T. B. Lenaerts, 60, Rue des Fortifications, Antwerp, the President of the Society.

THE CHIPPING NORTON AMATEUR ROSE SOCIETY will hold its annual Exhibition on Friday, July 12th. A liberal schedule of prizes has been issued, and includes an open class for nurserymen and amateurs in addition to the local class, in which a handsome challenge cup will again test the prowess of the rosarians of the neighbourhood.

TROPEOLUM ALBIFLORUM has flowered very well with Mr. Dowdeswell this spring. It is an elegant plant. He is a great admirer of the Tropeolum tribe of plants, and is very anxious to recover a tuber of the T. Moritzianum, which he lost some years since and has not been able to meet with again.

STRAWBERRIES GROWN ON A ROOFTOP IN THE CITY

OF LONDON.—A correspondent has sent us a dozen Strawberries which were grown on the roof of a warehouse, in a thoroughfare within 100 yards of the General Post Office. The Strawberries are certainly of rich flavour, and possess an excellent aroma. Our correspondent thinks the growth of the fruit in such perfection is a proof of the comparative purity of the atmosphere; and we quite agree with him. He adds that he has a Cherry tree on the same roof, with fruit on, which promises to ripen. To these interesting facts in connection with City pomology we may add that some fine specimens of Figs, likewise grown in the City, were sent to us some time ago; and that another correspondent used regularly to send us some excellent Grapes, grown near the London Institution in Finsbury Circus.—(City Press.)

A CORRESPONDENT, "S. N.," writing to us on GENTIANA ACAULIS, states that he has grown it for many years; first in the neighbourhood of Lancaster, at the edge of a border by a gravelled walk. He then removed the plants into Gloucestershire in February; they flowered twice in the following and succeeding year. They were brought to the neighbourhood of Chester in November, 1876, and flowered sparingly in a bed the following summer. In February this year they were again removed, but in the same garden, to the edge of a bed bounded by a gravelled walk, where they flowered very well early in May. They are now looking most healthy. All our correspondent has seen grown in the north were grown as he has grown them, and were luxuriant.

THE largest STRAWBERRY FARM in the world is about two miles from Norfolk, Va. It contains 200 acres.

ALLUDING to the ARUM AS AN INSECTIVOROUS PLANT "E. W. B., Mossley," writes as follows in the "Midland Naturalist":—"For two years past I have grown a plant of Arum crinitum in my garden, and each year it has produced one of its lugubrious-looking spathes. When the inflorescence is fully developed a most offensive carrion-like smell is emitted. Directly the disagreeable odour is produced bluebottle flies (Musca vomitoria) make their appearance and swarm on to the protruding lip of the spathe. Both years I have noticed no sign of these flies until the fetid smell of the Arum attracted them. The flies seem strangely and powerfully fascinated by the Arum. They fly unerringly to the plant; they then speedily make their way to the narrow entrance to the lower part of the spathe in which the base of the spadix is chambered in almost absolute darkness. The inlet is narrow, and is well protected by hairs, though they seem no obstacle to the ingress of the flies; but after they are once inside there they must remain, whether stupefied by the noxious exhalation of the plant or imprisoned by the hairs which yielded them such easy entrance I do not know. I have watched the plant for hours, but never saw a fly return from what may be deemed a condemned cell. The spathe remains open only a day or two at most, and then gradually closes and shrivels up. Each year at an interval of a week or so after the closing of the spathe I have cut open the chambered part of it and have found it nearly full of dead and partially decomposed flies."

PROFIT OF GRAPE-GROWING.—Mr. E. F. Ellwanger, says the "American Gardeners' Monthly," makes the good point that those who find Grape-growing "don't pay" are generally those who have gone into it from some other business, and who thought plants ought to "grow into money while they slept." Honest profit means honest labour; "No work no pay" is Nature's law in gardening. Mr. Ellwanger thinks that the man who first loves his trade and then sticks to it generally succeeds, and we quite agree with him.

THE New York Medical Record (May 18th) states that the NEW YORK FLOWER AND FRUIT MISSION recommenced its operations for this year on May 1st, and distributions will take place every Monday and Thursday to the different hospitals, asylums, prisons, and other public institutions, and also to the sick and destitute in the tenement houses of the city. The ladies having the work in charge anticipated but a comparatively small supply of flowers the first day; but, instead of this, there was a sufficient number sent in to make more than four thousand bouquets. Of these, four hundred, composed exclusively of Lilacs, were sent to the blind asylum, as the blind seem to be more fond of the odour of Lilac than almost of any other shrub or flower. The Flower and Fruit Mission accomplishes its work at probably a less cost than any charitable society that ever existed in New York, for during the eight years of its existence its

actual expenses have amounted only to \$125. The flowers and fruit are all given by friends of the charity; the railroads, as a rule, furnish free transport to those sent from the country; and the ladies who distribute them pay their own expenses to and from the institutions visited by them. These kind-hearted ladies make no parade of their doings, and no names are even made public, except that of the lady secretary for business purposes.—(*The Week*.)

ALYSSUM WIERZBICKII.

THIS plant belongs to a small genus of Crucifers, one species, *A. saxatile*, being as familiar to gardeners as household words. We fear, however, this will not be the case with the name of the species of which we now give an illustration. Unpronounceable though the name would appear, the plant is de-



Fig. 72.—*Alyssum Wierzbickii*.

serving the attention of everyone having even a small garden. It is an erect grower, attaining a height of about 2 feet, but commences flowering when a foot or 15 inches; the additional height arising from the growth of the flower spike, which, it will be readily understood, materially lengthens the period of its beauty. Our figure was taken from a plant kindly furnished by the Messrs. Rollisson & Sons of Tooting, in whose nursery a bed of this has been in full beauty since March, and even now as we write it is not quite past. The plant is an erect grower, producing oblong lanceolate rugose leaves, light green on both surfaces. The stem also is the same shade of green, rugose and hirsute. Flowers numerous and bright yellow.

It should be sown at once for blooming next spring, whilst those just going out of bloom should be cut down; but we would not advise the plants to be kept longer than the third year, as they get woody and unsightly at bottom, and do not produce such fine spikes of flower as the young seedlings. It may also be increased from cuttings if desired. These plants

may be grown in almost any soil, but a calcareous loam suits them best.

GRAPE VINES FOR TEXAS.

YOUR correspondent, "J. H. W.," wishes for information with regard to which Vines it would be desirable for him to take out with him to Texas.

The European varieties of the Vine do not generally succeed well in the United States except under glass, the changes of temperature in a short time are so great; therefore, if I intended to settle there I should only take a few of the hardiest, such as Buckland Sweetwater, Black Hamburg, Royal Muscadine, and some of the Muscates. The Muscat of Alexandria would be as likely to succeed as any, and Pearson's Golden Queen might be worth a trial. Texas is a large country, and I do not know what part of it "J. H. W." is going to, or whether the situation is elevated; but if not, and his intention is to go to considerable expense in starting a vineyard, I should certainly advise caution, and recommend a little experimenting first, for it would be almost certain to end in disappointment and vexation. The only Vines which would have a chance of succeeding would be the American varieties, such as the Isabella and Catawba, and they would be uncertain so far south as Texas, which is beyond the regions of the Wheat and Indian Corn, which are the natural home of the Grape Vine.—AMATEUR, *Cirencester*.

CALIFORNIAN DICENTRA.

IN my botanical researches in California I have found few flowers which were discovered with as much pleasure as our various *Dicentra*. I well recollect the first time I found the variety known as *D. formosa*. At that time I did not know we were so highly favoured as to have any members of the family within our borders. It was in a little grassy vale. When I saw it, so much did it resemble *D. spectabilis* that I thought it was a stray plant of that well-known Chinese variety, the Bleeding Heart of our gardens. On a slight examination, however, I soon saw my error, but so highly pleased was I with it that I dug it and removed it to my garden.

The *Dicentra* belongs to the natural order *Fumariaceae*. In California we have three varieties that I am acquainted with.

Dicentra formosa in the Sierra Nevada, at an altitude of 6000 to 8000 feet, is found in grassy vales near streams of water. It grows from 1 to 2 feet high. The flowers are borne on a compound racemose scape, from which they hang pendent. The flowers are of a rosy purple colour; the centre is a bright cream colour; thus forming one of the grandest combinations among flowers.

D. chrysanthra is the most robust and vigorous of our native varieties, often growing 4 to 5 feet high. The leaves are immense, often 15 inches long. The flowers are borne on long racemes, from which often branch out shorter scapes. The flowers are large, one-half to an inch in length being the average size. They are of the most brilliant yellow colour, and when the sun shines they sparkle and glisten as though freshly varnished. This variety, while it lacks much of the graceful habit of the other varieties, surpasses them in brilliancy and show. In their natural haunts they grow in a moderately light soil in the vicinity of running streams. In cultivating them it will be best to plant in similar places if possible. The finest flowers I have always found on plants growing in the shade of trees.—(*American Gardener's Monthly*.)

CHOICE GARDEN ORCHIDS.—No. 2.

ÆRIDES, Lour.

A. Fieldingii, Lindl. (fig. 73).—This species is, perhaps, one of the finest and most distinct in the genus, yet it has not found sufficient favour amongst botanical artists to have been previously figured. When first introduced it was known by the popular title of the Fox-brush *Ærides*, from the long dense raceme of flowers which it produces. Leaves strap-shaped, thick and leathery in texture, channelled above, unequally notched at the apex, and very deep green in colour. Raceme dense, 1 to 3 feet long, branching, pendulous. Flowers large and open. Sepals and petals oblong obtuse, the lower pair much the largest. Lip flat; middle lobe large, ovate acuminate. Colour rosy lilac, with a streak of reddish crimson at the base. May, June, and July. Assam. 1851.

A. Fieldingii, Lindl.; var. *Williamsii*, Hort. Syn., *A. Williamsii*, Hort. (Warner's Select Orchids, 1, p. xxi.).—This

handsome variety may be readily distinguished even when not in flower by its very robust habit of growth. Leaves 12 to 15 inches in length, very broad, strap-shaped, channelled above, notched at the apex, leathery in texture, and deep green. Racemes pendulous, dense, 2 to 3 feet long. Flowers as large as the species. Sepals and petals oblong obtuse, pure white. Lip flat, ovate acuminate, white, tinged towards the base with rosy pink. May and June. Assam.

A. crispum, Lindl. (Bot. Mag., t. 4427).—A handsome free-

growing and very ornamental species. Stem blackish purple. Leaves somewhat distant, 6 to 8 inches long, broad, flat, obtuse, and bilobed at the apex, deep green. Racemes ascending, 12 to 18 inches long, many-flowered. Flowers large and of great substance. Sepals and petals ovate, acute, waxy-white, tipped with deep rose. Lip three-lobed; middle lobe large, toothed at the base, and slightly fringed in front. Colour rich rose. Spur short, incurved. May and June. Bombay. 1840.

A. crispum, Lindl.; var. *Warnerianum*, Hort. Syn., *A.*



Fig. 73.—*AERIDES FIELDINGII*.

Warnerii, Hort.—This is a very slender-growing plant compared with the normal form; indeed it may yet prove entirely distinct from *A. crispum*. Stem dark purple. Leaves short, narrow, and ascending. Raceme nearly erect, much longer than the leaves, many-flowered. Sepals and petals pure white. Lip large, rich deep rose colour. June and July. Bombay.

A. Schraderii, Hort. (Gard. Mag., 1850, 11, p. 121). Syn., *Aërides maculosum Schraderii*, Hort.—A truly magnificent plant, by some considered to be a distinct species, by others a natural hybrid between *A. crispum* and *A. maculosum*, and again by some a variety only of the last-named species. We ourselves have held all these opinions, but have gradually been

compelled to acknowledge its total distinctiveness. In habit it is robust and free-growing, producing broad leaves some 10 inches long, arranged in a distichous manner, unequally lobed at the apex, and bright green on both sides. Racemes much branched, bearing from twenty to sixty of its large and handsome flowers. Sepals and petals broad, oblong obtuse, creamy white, tinged and streaked with rose. Lip flat, three-lobed, with the small teeth at its base incurved, and the intervening tubercle bifid; middle lobe very large and deep rosy crimson in colour. June and July. Bombay. Only one plant has ever been imported. 1849.

A. maculosum (Bot. Reg., xxxi, t. 58).—This is a very slow-

growing plant, and somewhat more difficult to cultivate than the majority of the species belonging to this genus. We believe it requires less heat, less water, and more air than is usually accorded it, and on account of its bad treatment it is less seldom seen in bloom than it otherwise would be. Leaves ligulate, some 9 inches long, obtuse at the apex, thick and coriaceous in texture, closely set on the stem, and dark green in colour. Raceme pendulous, double the length of the leaves, many-flowered. Sepals and petals broadly obtuse; ground colour soft rose spotted with purple. Lip large, flat, and undivided, bluntly ovate, and rich purplish rose in colour. June and July. Bombay. 1844.

A. falcatum, Lindl. Syn., *A. Larpenta*, Hort.—A free-growing plant of great beauty. Leaves short, coriaceous in texture, obtuse and mucronate at the apex, imbricating at the base, and of a peculiar blue-green colour throughout. Racemes longer than the leaves, pendulous, many-flowered. Flowers large. Sepals and petals broadly obtuse, tipped with rose or rosy purple; ground colour white, freckled with reddish crimson dots. Lip large. Side lobes white; middle lobe deep rose. Spur short, parallel with the lip. May and June. East Indies. 1846.

A. odoratum, Lour. (Bot. Mag., t. 4139). Syn., *A. cornutum*, Roxb.—A robust-growing plant, and the commonest species of the genus in cultivation. Leaves distichous, flaccid, oblique, obtuse, mucronate at the apex, and dark green. Racemes pendulous, dense, many-flowered, usually longer than the leaves. Flowers very fragrant, creamy white. Sepals and petals pink at the tips, fleshy, roundish-ovate. Lip cucullate, funnel-shaped. Lateral lobes erect, cuneate, rounded; middle lobe ovate, acute, inflexed. Spur conical, incurved. May, June, and July. East Indies. Widely distributed. 1800.

A. odoratum, Lour.; var., *majus*, Hort.—A variety which cannot be distinguished from the normal form when out of flower. The racemes are much longer than in the type. The individual flowers are much larger and the colour deeper, rendering it a most desirable form.

A. odoratum, Lour.; var., *longiracemosum*, Linden.—This plant is more lax in its habit of growth than any other variation of the species, and, as its name denotes, it produces very long racemes of flower, which resemble the normal form both in size and colour. Upper Assam.

A. odoratum, Lour.; var., *purpurascens*, Hort.—A very robust-growing plant, producing broad, stout, deep green leaves which are shorter than the type, and by this character alone it may be distinguished. The racemes are much longer than the leaves. Flowers large and numerous, forming a very dense spike. Colour deeper than the species.

ROSES AT SOUTH KENSINGTON.—JUNE 17TH.

As your reporter has justly observed, although the Society placed the Roses in the forefront the Pelargoniums formed the larger portion of the Show, but not the most attractive portion. The crowds that surrounded the boxes of the queen of flowers sufficiently testified to her popularity, and a few notes from an "old hand" may not be unacceptable. It was a pleasure to see our old friends re-appearing, to hail the stands from Hereford, Monkton Wyld, Salisbury, Cheshunt, and other places; but most of all pleasing to me was to see my veteran neighbour, honest John Hollingworth, coming out as he has been wont to do, and taking first prizes in each class in which he exhibited. "I am getting old, and the old love is dying out," were his words to me some time ago. Not a bit of it; as long as he can he will be found doing his very best, and I hope we may long see him entering the lists.

Who was there who knew aught of Roses that was not astonished at the size of the blooms exhibited from the nursery at Salisbury, until lately under the loving care of John Keynes, and let us hope under its new arrangements to keep up its well-earned reputation? I may be mistaken, but it seems to me that this is an index of coming events. I cannot but fancy that this year will be a grand one for such soils as that of the Salisbury nursery (light and warm), and that the really Rose soils, the heavy loams, will not do so well. The light-land farms will do best this year, and so, it may be, it will be in Roses. There has been too much wet perhaps for the heavy soils, but the light ones rejoice in it. Personally I have not had for years such flowers as this season, and my soil is light. We have a saying in Kent—

"When England wrings (i.e., her hands)
Thanet sings,"

the light chalk lands of the Isle of Thanet bearing any amount

of rain. There was one bloom of Général Jacqueminot from Salisbury, which for size and colour was indeed a sight; grand, too, were the blooms of La France, Marquise de Castellane, and Marie Baumann. In Messrs. Paul & Son's stand there was a magnificent bloom of Mrs. Laxton, fully bearing out the opinion I formed of it at Manchester; it is a grand Rose of exquisite form, plenty of stuff in it, and of large size, of the Alfred Colomb type. It appeared again in Messrs. Paul and Son's new Roses, and will, unless I am mistaken, be found one of our very best exhibition Roses. Very good, too, in this class was Sultan of Zanzibar, one of the deep-coloured class which Cheshunt has sent forth, as Reynolds Hole, Duke of Connaught, &c. In the second box in this class it would have required as microscopic an eye as Lord Salisbury said was required to detect the difference between the proposal of England and the terms of Russia, to say wherein lay the difference between Mons. G. Tournier and Madame W. Bull. Mr. Hollingworth's box of Teas was lovely, but is it not a mistake to put Cheshunt Hybrid amongst them? It is indeed a colour much wanted, and although it has Tea blood in it yet it is not a Tea, and moreover it is out of keeping with the others, its shape is different, and its size too great generally; it is a most useful Rose, a grand fellow for the garden, but he is hardly a fitting companion for the dainty dames by whom he was surrounded. In Mr. Wyatt's collection, and indeed in very many of the stands, Mons. E. Y. Teas was in grand form. This is likely to prove one of the best additions of late years. Our old friend Charles Lefebvre came out grandly, and he might well ask what the saucy dame Marguerite Brassac meant by assuming to herself such airs, for the two were exactly alike; but I fancy the latter is a better grower. Belle Lyonnaise in both Mr. Camm's and Mr. Jowitt's boxes was good, and were it not for the defect that it has of coming with a cleft centre would be one of the very grandest of yellow Roses.

A great deal is said about the sad uniformity of a Rose show, and attempts to break through are frequently insisted on and sometimes made, but they never are carried out without manifest disadvantage and no improvement. Mr. Wills's attempt at the Aquarium was a failure, and if that were the idea at South Kensington I think everyone must be convinced that it was equally a failure there. The boxes were put up and down anywhere amongst the plants on the slopes, and the result was great confusion and difficulty in getting at the entries.

I look hopefully on to our grand tournament on Saturday next. This tropical weather must surely stop anyone from writing "My Roses are too backward," at least if I may judge from my own. As I do not exhibit I do not shade, and the rapid manner in which they are coming into bloom is astonishing. Dark Roses, too, like Baron Bonstetten, La Rosière, &c., are literally burnt up before they can expand. Exhibitors are sending in their entries in great force. Ireland will furnish a contingent, and I hope every district will be well represented, and that all will go "merry as a marriage bell."—D., Deal.

THE OLD MARKET GARDENS AND NURSERIES OF LONDON.—No. 20.

In this series of articles some account has been already given of the garden ground, now mostly built upon, situate in South Lambeth, Vauxhall, and Stockwell; Vauxhall, astonishing as it may now appear, having once been famous for its flowers, especially for its Camellias, and Stockwell being noteworthy as a place that was once to have been the selected spot for a Botanic garden that was to be both popular and instructive. The scheme collapsed, however, as schemes both good and bad are apt to do, and at present the south Londoners cannot be said to be particularly favoured with the means of acquiring botanical knowledge. A solitary nursery, the survivor of several that formerly existed in or near the South Lambeth Road, has, I perceive, succumbed to the builders within the last few months; it was just beyond the bend in the road near the distillery, and overshadowed by a pretentious structure denominated a "Board School," recently erected. Perhaps the unlucky nurseryman found that the scholars stole too many Roses and Geraniums, and exercised too much dexterity in the smashing of glass! We may hope that in another generation, however, every school will have a plot of ground as large attached to it, where the pupils of either sex can make acquaintance with growing plants placed under some classification, and learn especially the names of those species that are natives of these islands.

Continuing our survey of Surrey we will now pass from the

places referred to in order to notice the adjacent districts of Camberwell and Brixton, both of which have been subject to a surprisingly rapid increase of buildings during the last twenty years or so, in consequence of which parks, fields, and nurseries have had to lose their rural or floral beauties and surrender their ground to lines of streets or terraces. One peculiar feature of this portion of Surrey are its hills, which form a singular natural rampart, rising and falling at intervals, while at each end they slope off into the Thames valley. Leaving out of the view the many hills of Norwood we may remember the following:—"Plew-garlic" Hill, Nunhead Hill, Grove and Champion Hills, Denmark and Herne Hills, Brixton Rise, Clapham Rise, Battersea Rise. From amongst these in former times rose many little springs, which contributed much to the fertility of the district. Moreover, it had once its stream, or a river seemingly, for monarchs passed up it under the shade of Alders and Willows when inclined to wander in the Surrey woods. The last, it is reported, who did this was Queen Elizabeth, and for many years the stone to which her barge was moored was preserved as a relic. Rising in Norwood the Effra, as it was called, flowed through Brixton, passing close to the church of St. Mark's, Kennington, finishing its course by entering the Thames near Vauxhall. Now covered in and converted into a sewer, it has shared the fate of the Fleet river and other London streams; but it has had a recent opportunity of taking revenge for this ill usage. On the 11th of April of this year, in consequence of the enormous rainfall, the Effra received so much water during a few hours that the immense pressure forced up the arch of the brickwork covering it along the line of the Brixton Road, scattering gravel in all directions and shifting large slabs of pavement. Not only was the road flooded, but the basements of houses suffered considerably.

Proceeding to Camberwell (which, for no sufficient reason, a modern topographer calls Camerwell, an old name certainly, yet Camberwell or Cambrewell dates from the Conquest), evidently designated from one of the Surrey springs. It is to be observed that at a period when there were numerous nurserymen in Middlesex there were none in Camberwell, and not many market gardeners. Nurseries grew up about the London suburbs in proportion to the requirements of the dwellers, and the thinly populated "Surrey side" of the Thames offered few inducements to the enterprise of nurserymen till the accession of George IV., or about fifty years ago. The produce of market gardens could, of course, be taken to metropolitan centres by land or by water. In 1766 Camberwell parish, an extensive one, contained scarcely eight hundred houses, but so rapid was its growth between 1820 and 1840 that in the latter year there were upwards of eight thousand, and, like every suburb, it has grown still more populous since that time. Though marshy at one period it always had the repute of being healthy, hence many detached residences were erected on or near the main road, some with park-like grounds attached to them. When Lysons wrote his account of the "Environs of London" in 1792 the open land was, he states, nearly in equal proportions—arable, pasture, and garden; but on a large part of this garden ground crops were grown to supply food to the cows, which were numerous in Camberwell. There do not appear to have been many orchards in the vicinity, though an "Orchard Row," near the Green, records that there was once an orchard there, and an orchard is specified in connection with the estate of one of the Camberwell manors, long held by the Bowyer family. Revising his book in 1811 Lysons had to report that the cowkeepers had diminished in number, but he considered about 200 acres of land belonged to the market gardeners, nearly the whole of the ground in proximity to Camberwell New Road being then under cultivation; there was also much produce raised near the Surrey Canal, between St. George's Church and Peckham New Town, on land now covered by buildings called Grosvenor Park, and various streets. Coldharbour Lane—originally named, it is presumed, from Cold Abbey, one of the Camberwell manors—was, in the memory of persons not very venerable, only a lane intersecting market gardens and joining Camberwell to Brixton. The railway lines crossing the district have done much in the way of spoiling the garden grounds, especially those belonging to the London, Chatham, and Dover Railway Company. Some of the land lying between the Camberwell New Road station and Holland Road, on which vegetables are still grown, represents, as I conclude, the older market gardens hereabout, and it is noticeable that, owing to the difficulty of guarding against depredations in these populous

suburbs, gardeners prefer to cultivate what is less likely to be stolen. Rhubarb, Cabbages, and Potatoes do not offer strong temptations, but even the last, although digging is requisite, are sometimes carried off by the thievishly inclined. Messrs. Martin, Myatt, and Goshawk are the principal market gardeners now at work in this part of Camberwell. There are several nurserymen and so-called "florists;" amongst these the pre-eminence may be justly assigned to Mr. Fryer of the Camberwell New Road, where his principal establishment is situate, and where, despite the London smoke, many plants flourish in the open air as well as under glass. The extent of the land at present occupied by him in this spot is small, and it is encroached upon by houses on all sides. It furnishes an illustration of the manner in which garden ground has been subdivided, in consequence of the difficulty there has been of late years in retaining plots of some extent, when we state that Mr. Fryer has also ground in three or four other places in the neighbourhood. It is true that advantages may arise from this, as it enables a nurseryman to secure patrons in different localities when business is done at these branches. The "Clarendon Nursery," for so is Mr. Fryer's named, was established early in this century by Messrs. Buchanan, Oldroyd, and Marsden, and for the last forty-five years it has been in the hands of the present energetic proprietor.

Brixton, now no longer in the country yet retaining a semi-rural aspect, is the greater part of it, an outlying portion of the parish of Lambeth, a fact of which ratepayers in Brixton are unpleasantly reminded. Originally, so say antiquarians, it was Brixiston, probably from Brixi's or Brice's Stone, some old landmark there. It had its corn fields not so many years ago, and towards Brixton Rise there remained until quite recently a portion of the old forest of Sherwood, which, given by William I. to the Londoners, was by them allowed somehow to slip out of their possession. One of the more important estates was in or about 1740 bought by Lord Holland; it was presumed to have taken its name from Henry Hastings, Lord Loughborough. There were at that time orchards of some extent, and about 234 acres of land altogether; part of it was so very marshy at certain seasons that the road across was called the "Washway." This land was gradually improved in condition for gardening purposes, and before the extensive building operations commenced which have transformed the district, the Loughborough Nurseries were rather famous. Mr. Denyer, nurseryman and market gardener, who had been under Mitchelson of Kennington Oval, is the oldest on record there; the office of his establishment was in the Loughborough Road. His successor was Mr. E. Randall, whose grounds underwent the process of gradual diminution to which London market gardens are so subject. The "Swiss Nursery," occupying (it I am not mistaken) land adjacent to that held by Messrs. Denyer and Randal, had its stock dispersed in 1877. The only establishment now remaining, and which, without intending any invidious comparison, may be styled the leading one in Brixton, belongs to Messrs. Ponsford & Son of Loughborough Park. This nursery was commenced in 1843 by Mr. Samuel Ponsford; about four acres is the present extent. Much of the cultivation is done under glass, and a large amount of general nursery stock is kept on hand for the supplying squares and gardens. Branches exist in the Brixton Road and at Denmark Hill. For many years past the Mulberry has been one speciality with the firm, from 1500 to 2000 plants being taken from the stools every year and sent amongst the trade or the general public. (It is curious that centuries ago the Mulberries of south London were famous—thus, there was Queen Elizabeth's tree, amongst others, growing in the gardens of Carlisle House, Lambeth. Oldys, when he saw it in 1753, noted that "it had been split by the weight of its own shade and fruit," and he guessed that the shadow extended over a circumference of 40 yards. The tree yielded that year, old as it was, nearly five hundred pottles of fruit.) As Messrs. Ponsford & Son have a good term of lease before them we may hope that their nursery will not have to disappear before the expanding metropolis; fortunately horticulture here is not greatly affected by the smoke of London. From thirty to fifty persons are employed by the firm according to the season.

There are several nurserymen in the Brixton Road, upon whose establishments, which have scarcely any land attached to them, it is not needful to make remarks. There is one, however, owned by Messrs. Lane, Brothers, which represents the Angell Town Nursery, occupying a part of the gardens, now nearly built over, belonging to the eccentric John Angell, who,

dying in 1784, left his property to found a college on peculiar conditions, but the Court of Chancery set aside his will. Acre Lane had once fields and market gardens on both sides, but houses are being rapidly erected there, and an "estate" has been just cleared for building purposes which was under cultivation a few months since.—C.

A GLIMPSE AT THE ALEXANDRA PALACE ROSE SHOW.

THE Show was not a large one. It is likely to be a late season. Several well-known prizetakers were conspicuous by their absence; but the Roses shown, like the British Infantry, if few by comparison were mostly excellent in quality. Not venturing to discuss the prizetakers, the chief other objects of attraction were certainly Mr. W. Paul's new seedlings. I believe Countess of Rosebery and Duchess of Bedford are not yet in commerce; whenever they are we may reckon on a considerable run on them. Both are of the reds; the latter rather dark, admirable in shape, vivid in colour, especially the Countess, and altogether the most striking novelties I have seen lately. Another seedling of Mr. W. Paul, which he has called May Quennel, also appeared to be a Rose of very considerable promise. Much admiration was also freely expressed for twelve wonderful La Frances hailing from Cheshunt. How Mr. George Paul can bring them to such a size without coarseness or loss of colour can only be intelligible to those who have seen the Old Nurseries. The show of Tea Roses was fine, Turkey Court, Maidstone, again taking the lead amongst the amateurs, and the Mitchells of Pittdown being as so often first of the nurserymen. It will be interesting to observe how the Manettis do this wet season. My impression is that Briar stocks will outdo them. I expected great things from a carefully made new bed last autumn of a hundred Manettis, and now find the plants looking remarkably miserable.

There appear a great variety of Rose prophets this season and very considerable disappointment exists in some quarters. The general impression, however, is that the National Rose Society have selected their days with very extreme discrimination.

June 22nd, "*Probitas laudatur et alget.*" Let us hope that the British public will not only praise but liberally support a Society which is catering for them with such successful diligence.—A. C.

WORK FOR THE WEEK.

KITCHEN GARDEN.

THOUGH the time has not yet arrived for sowing the Tripoli section of Onion and that most useful vegetable Winter Spinach, it is well to consider them beforehand, so that due regard may be had to the reservation of ground and its preparation for these important crops. The Onion will succeed spring-planted Cauliflower, which will be off in time for the Onions. We prefer this rotation to any other; the ground having previously been trenched and manured for the Cauliflower will be in fine trim for sowing the Onions, requiring only to be forked over. Spinach will do well after Peas, Beans, or Potatoes. Peas of the earliest kinds will by this time or soon be over. A clearance should be made at once, the ground forked over and at once planted with Cauliflower, Broccoli, or such winter greens as are most in request. Similar remarks apply to ground from which early Potatoes have been lifted, planting without delay any greens likely to be useful in autumn, winter, or spring. Make a sowing of French Beans in a warm situation, and a moderate sowing of Turnips, Lettuce, Radishes, and Spinach, so as to maintain the succession. Take up Shallots as soon as they indicate ripeness, and after drying store them away in bunches or otherwise. Plant out Leeks in well-manured trenches; those in beds thin from 9 to 12 inches apart. Sow Parsley, some in a warm sunny situation, and subsequently thin the plants to a foot distance apart. That sown previously should be thinned to that distance, planting out some at the base of a wall, where it can readily be protected in severe weather. It must be well watered until established. Make a sowing of Peas of the early varieties, and in warm situations a sowing of Ne Plus Ultra, which if the autumn be favourable will give a good supply of produce certain to be esteemed. A sowing of Early Longpod Beans should also be made, late crops being as highly appreciated as the earliest. Ridge and Gherkin Cucumbers may yet be planted, placing about a barrowful of loam and a little well-decayed manure in a heap, and plant two plants on each; or, if Vegetable Marrows are wanted, one. Capsicums plant out in rich light soil in a warm situation, in rows 18 inches asunder and 12 inches apart. Strong plants showing fruit only should be put out. Basil, Marjoram, and Summer Savory should be thinned to

6 inches distance apart in the rows, also Thyme and other herbs sown in spring.

HARDY FRUIT GARDEN.

The sap not being required for the swelling of the fruit (which in most instances is not more plentiful than it was last season) is imparting considerable vigour to the young shoots, they, unless checked, promising to be unduly vigorous—gross in fact, and unfruitful. To induce the formation of fruitful wood early stopping must be resorted to, allowing time for the formation of fruit buds by the exposure of the foliage producing them fully to light and air, the thorough ripening of the wood, and as great freedom as possible from insects, which the removal of the useless spray effects to a considerable extent. Prior to stopping the growths the requisite shoots for filling-in vacant space must be secured, and then all spray can speedily be disposed of by the secateurs. After pruning, if there be any aphids, syringe thoroughly with the garden engine, employing tobacco juice diluted with six times the quantity of rain water. All side shoots and forerights should be cut back to three leaves. This will cause spurs or fruit buds to be formed at the base of such trees as the Apricot, Plum, and Cherry, and by admitting light and air to the spurs of Pears the buds will be plumped, the energies of the trees being expended upon them instead of in the formation of gross useless growths. The late prolonged cold dull weather has not been without its effect upon Peach and Nectarine trees: blistered leaves, owing to their tissues being injured, are plentiful, and aphids has become troublesome. The former should be removed at once, as they only draw the sap from the other parts, and the shoots infested with green fly should be dipped in tobacco water. In laying in the shoots of Peaches and Nectarines, also Morello Cherries, small twigs of Privet or Birch are useful in saving time and labour, the ends of the twigs being readily thrust under the older branches, and where the walls are wired this mode of securing the shoots for the summer is preferable to tying. Strawberries promise abundantly; the weather has been all that could be desired, the rains having encouraged surface roots, which, in case of a dry time setting in, recourse must be had to artificial waterings, which more particularly applies to shallow soils. Attend to trussing up with a view to fine clean fruit for dessert. The scions of trees grafted in spring must have the ligatures loosened or removed, or the rapidly swelling shoots will be injured. The grafts must be secured to sticks made fast to the branches on which they are worked, or they will be liable to be blown off. Shoots from the stock must be rubbed off as they appear.

FRUIT HOUSES.

Peaches and Nectarines.—In the earliest house the fruit will all be gathered and most of that in the next early house, that in the third house taking its last swell for ripening. When the fruit is all gathered attend to syringing the trees morning and evening with a view to dislodge red spider, employing a garden engine, which is much more effectual than the syringe; and in case of the syringing not effecting a clearance apply a solution of soft soap, 3 ozs. to the gallon of water, wetting every part of the trees well, especially the under sides of the leaves. The border, if at all dry, should have a good watering—sufficient to reach the roots; and in case of weakly trees weak liquid manure will materially assist them in forming plump flower buds. With a view to prolonging the season fire heat may be discontinued in houses where the fruit is ripening, and air should be admitted freely day and night, maintaining a good moisture at the roots to compensate for the lessened moisture in the atmosphere consequent upon the fruit ripening. In houses where the fruit is taking the second swelling after stoning apply the syringe vigorously to keep red spider under, as if it get a hold before the fruit commences ripening it will seriously affect the quality of the fruit and impair the foliage for the perfecting of the buds for future bearing. Keep the borders well mulched and thoroughly watered, giving a sprinkling of guano over the surface of the border to weakly trees, and wash it well in. Afford plenty of air whenever the weather is favourable, and close early in the afternoon to economise heat. Dispense with fire heat (only in the case of fruit ripening fire heat may be necessary) to admit of air being given with a view to highly flavoured fruit. When the fruit is ripening 65° to 60° at night, 70° to 75° by day, and free ventilation will afford well-swelled good-flavoured fruit, having a rise of 10° to 15° from sun heat, the atmosphere being kept dry. Keep the shoots well tied down. Laterals on the strong shoots pinch back to the lowest leaf, and thin out superfluous shoots. In the latest house admit air freely, employing no fire heat, only in a dull cold period the heat may be turned on in the early part of the day for a few hours to admit of a free circulation of air. Mulch both the inside and outside borders with short manure and water abundantly, finally thinning the fruit, keeping red spider under by syringing twice daily, and if it obtain a footing promptly apply an insecticide.

Vines.—Grapes to hang over the winter months require more thinning than those not intended to keep for any lengthened period. The high and dry borders of modern culture do not receive, as a rule, anything like the quantity of water they require, especially inside borders. They should be well mulched and very

liberally watered, sprinkling them with guano in the case of weakly Vines, and washing it well in. This more particularly applies to those swelling off the fruit, keeping them free of all gross lateral growths. To those colouring give plenty of air with abundance of heat, as nothing contributes so much to high flavour and finish as a free circulation of rather dry warm air; but Vines struggling with a heavy load of fruit should not be subjected to so high a temperature as those luxuriant and carrying no more than a fair crop, but rest must be afforded them at night by allowing the temperature to fall to 60°. Old Vines from which the Grapes have been cut should be kept free from insects, for if the foliage fall a prey to red spider it is not unlikely a second growth may set in when they ought to go to rest; therefore syringe the Vines every evening so as to preserve the old foliage as long as possible. Afford frequent surface waterings to young Vines with the object of keeping the roots near the surface, applying it at a temperature of 90° to 100°, well mulching the surface of the border.

Orchard House.—The fruit of Apricots, Peaches, Nectarines, Plums, and Pears will have been thinned to the requisite number intended for the crop; if not it should not longer be delayed, as the fruit will now be swelling rapidly and require encouragement. Mulchings of rich material should be given the surface of the pots or borders, affording liberal supplies of water. Trees in pots carrying a heavy crop of fruit should have liquid manure in addition to the mulchings two or three times a week, and any weakly trees should have the fruit more severely thinned than those that are very vigorous. Maintain a genial atmosphere by copious syringings every morning and evening whenever the weather is warm, which is equally necessary to keep down insects and to maintain an atmosphere favourable to growth. When the external air is cold it is desirable to close the ventilators rather early in the afternoon and during high winds, which rushing through the house promote excessive evaporation and cold, not at all conducive to the health of the inmates. Go over the trees frequently, pinching back or disbudding strong shoots, which, if unrestrained, spoil the form of the trees and appropriate sap to the detriment of the weaker parts and fruit; but avoid removing an excess of foliage at any one time, as great denudations of foliage induce gum and canker, soon causing the trees to become unhealthy. Cherries will be fast approaching ripening, in which case syringing must be discontinued; but if there be any black aphid it must be got rid of by fumigation, which, if the trees are in pots, is best effected by placing them in a separate structure, and if they could remain in such until the fruit is gathered all the better, as they could then be kept cool and dry, keeping the fruit in season as long as possible. If a structure is not available the trees should be placed by themselves in some part of the house, scrutinising the shoots for black aphid, washing any part infested therewith with tobacco water, or dust the infested shoots well with tobacco powder, washing thoroughly the following morning with the syringe or engine. Nets will need to be placed over the ventilators to exclude birds. In some, indeed most orchard houses, space is allotted for a Vine or two. In span-roofed houses there can be no objection to them, training a single rod along the ends and under the ridge of the house over the pathways, having wires fixed at about 14 to 16 inches from the glass for training the rods and the shoots to, having them about 9 inches apart, one for the rod and one on each side for securing the shoots to, which will not cause much shade below to the trees, and the Grapes depending over the pathway not only have a fine effect, but are very useful, especially when other means of growing Grapes are limited. The shoots ought not to be nearer together than 2 feet on the same side of the rod, they being stopped one joint beyond the fruit; if no fruit at the sixth leaf, and the laterals stopped at the first leaf. A border may be prepared for the Vines either inside or outside the house as may be most convenient, the chief consideration being to have it well drained. Black Hamburgh and Foster's Seedling or Royal Muscadine are the best black and white Grapes for this purpose. Figs in pots or planted out will require copious supplies of water, as, if they become dry at the roots, a check will be given that will cause the fruit to drop. Stop all strong shoots at the sixth leaf, and any weakly ones that tend to crowding, as also needless shoots remove altogether, for crowding of the shoots, whether the trees are in pots or planted out, tends only to unfruitfulness.

PLANT HOUSES.

Greenhouse.—*Salvia splendens* and *gesneriiflora* should, if not already done, be placed out of doors, previously having been shifted into their blooming pots, and staked and tied to prevent the shoots being broken by the wind. If plunged in ashes they will require less attention in watering, and the lower leaves will be less liable to fall. *Veronica Andersoni* and *salicifolia* are among the finest of autumn-flowering plants, but to keep them sturdy and induce a free-flowering habit the plants should be plunged in coal ashes in a sunny situation and be well supplied with water, and with liquid manure when the pots are full of roots. Shift Primulas from the earliest sowings into their blooming pots—6, 7, or 8-inch, according as they are wanted, large or small, draining the pots well, and employing a compost of turfy loam

with a fourth of well-decayed manure or old cow dung, and a sixth of sand. *Cinerarias* sown early and intended for autumn flowering shift into the blooming pots (8-inch), they being well established previously in 5 or 6-inch pots, the main point in growing these plants being to shift them into larger pots before they become very much root-bound. These, as well as Primulas, should be placed on ashes in a cold frame, keeping them moist and shaded from hot sun, removing the trusses of bloom from the Primulas as they show until the middle of August. When the pots fill with roots apply liquid manure once or twice a week. Sow seed of *Cineraria* and *Primula* in a cold frame to raise plants for spring flowering. *Kalosanthes* not showing a disposition to flower should be turned outdoors in a sunny situation, and allowed to remain until early September. Those showing flower should be neatly tied, and as the heads of bloom begin to expand place the plants on ashes at the north side of a wall, and they attain a colour of flower very much superior to those retained under glass, and when fully expanded remove them to the conservatory, shading so as to prolong the bloom.

Hardwooded plants that were potted in spring will now have filled the pots with roots, and should have a shift into larger pots—i.e., such free-rooting plants as *Polygalas*, *Acacias*, *Adenandras*, *Boronias*, *Darwinia* (*Genetyllis*) *tulipifera*, *Eriostemons*, *Pimelea*, *Statice*, *Leschenaultias*, &c.; and there must be no delay in performing it, or the plants will not have time to become well established before autumn. The size of the shift will be determined by the state of the roots, yet the shift at this time only must be moderate, so as to ensure the well filling of the soil with roots before winter, as if it be unoccupied there is great danger of its becoming sour. Between a 2-inch and 4-inch shift will be ample. Shade from bright sun for a fortnight to three weeks after potting, admitting air moderately, and maintain a moist atmosphere by sprinkling the floors frequently. Good fibrous peat is the only suitable compost for potting these plants, except clean white sand, which if sharp—i.e., free from dusty particles—and gritty all the better, adding about a fifth more or less according to the nature of the peat, and allow rather more space for watering between the rim of the pot and the soil, potting firmly. *Pimeleas* and *Boronias* after flowering should have a good syringing, and be placed where they can be kept somewhat closer, syringing every evening lightly to keep down red spider.

Azaleas that flowered early and have been potted and encouraged to make growth some time ago will not require more than very slight shade—a thin moveable material that can be withdrawn in all but the brightest weather. Any weakly plants making growth may have liquid manure at every alternate watering. Plants that flowered late should have the seed pods removed, keeping rather close, moist, and shaded, encouraged to make a good growth speedily. Shading, however, should only be resorted to to prevent the leaves from being checked in development, giving otherwise all the light possible without direct exposure to hot sun. Any plants of *Genistas*, *Correas*, *Acacias*, *Libonias*, *Monochæstums*, *Daphnes*, &c., intended for winter blooming should have every encouragement to make a good growth; and if any require more pot room it must be given at once, and if red spider appear keep it under by frequent and copious syringings. *Epacris* and *Heaths* for winter flowering will now be making free growth and should be kept in a light position, admitting air freely in the early part of the day, closing rather early in the evening and syringing overhead. *Fuchsias* that have flowered early may now be placed out of doors for a few weeks in a sheltered situation, all flowers and seed pods being picked off and the shoots then cut back about half, strong ones a third of their length; and when the fresh shoots are 1 to 2 inches long the plants, if moved into pots a size larger and placed under glass, will flower well in autumn on into the winter.

TRADE CATALOGUE RECEIVED.

T. W. Hellewell, Brighouse, Yorkshire.—*Prospectus of New System of Glazing.*

TO CORRESPONDENTS.

. All correspondence should be directed either to "The Editors," or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post.

BOOKS (*W. Phillips*).—"The Garden Manual," which you can have from our office if you enclose twenty postage stamps with your address.

SANDY PRAT SOIL (*Ash, Surrey*).—A heavy application of clay is your only mode of improving the staple of the soil. Mulching the surface over the roots of the crops would be a temporary safeguard for them.

ROSES (R. C. Croydon).—The largest, Paul Neyron; the sweetest, Provins Cabbage, La France, Bessie Johnson; the earliest, Old Monthly China; latest, Gloire de Dijon. The above are our own experience, but we shall be obliged by any reader stating his experience and where.

GRAPES DISEASED (Bristol).—They are severely attacked by the spot. The roots are torpid, and probably would be benefited by a liberal supply of weak liquid manure. Of the plants, No. 1 is *Habrothamnus elegans*. The others are florists' varieties, which are too numerous to be identified from single blooms.

FUNNEL-SHAPED LEAF (L. Hanlow).—It is a freak of Nature, and, like most of her freaks, inexplicable.

TRANSPLANTING ROSES (L. H.).—Your Roses must not be taken up before October, and then it is well to let the condition of the growth be your guide, for in a mild genial autumn the growth will be in activity somewhat later than in one of early frosts and low temperature. If it is possible to defer the planting till November do so, that month being the best of all the twelve for the work.

BALSAM CULTURE (Idem).—Expose your plants fully to the action of light and air, taking especial care not to crowd them together. Give them plenty of liquid manure. Pick off flower buds as they appear until the plants are as large as you desire, then let them flower, but do not cripple or retard any of the growth by pinching, for the natural habit of the Balsams is to become bushy and symmetrical; if it fails to do so it is owing to crowding or neglect.

MANAGEMENT OF VINERIES AND PEACH HOUSES (W. H.).—You cannot have more practical information nor more seasonable than that contained in "Work for the Week" published in the Journal. A small work, "Indoor Gardening," published at this office, post free for 1s. 7½d., also contains directions of culture for fruits under glass.

FRAGRANT ROSES (Amateur).—La France, Devonensis, Maréchal Niel, Charles Lefebvre, Louis Van Houtte, Gloire de Dijon, Alfred Colomb, Bessie Johnson, Abel Grand, Sénateur Vaisse, and Camille Bernardin are all highly fragrant and well adapted for exhibition purposes.

MELON HOUSES (H. E. M.).—Melons may be successfully grown in a house 10 feet wide—either a lean-to or a half-span. Two rows of 4-inch pipes for affording top heat will be sufficient unless you require the fruit very early. The same extent of piping is also requisite for affording bottom heat.

HORTUS SIOCUS (Mr. M. J. Teedall).—Sheets of blotting paper in a portfolio form a good mode of preserving wild flowers placed between the sheets and pressed.

NAMES OF FRUIT (Comnaught Subscriber).—1, Joo-c-o-sot; 2, Not known.

NAMES OF PLANTS (A. B.).—Neither of the specimens sent was *Lycaste Skinneri*. They are probably *L. aromatica* and *L. Deppel*. (*Un Garçon*).—Specimens much withered. 1, *Cineraria maritima*; 2, *Sedum Sieboldii*; 3, *Ceanothus rigidus*. (*M. R. D.*).—*Arisæma Murrayi*, *Grah.* (*Bot. Mag.*, t. 4388). (*Dr. Mackenzie*).—*Cladrastis lutea* (*Virgilia tinctoria*). (*An Irish Subscriber*).—You surely cannot expect us to name your Grasses from the specimens sent? (*E. H.*).—*Thalictrum aquilegifolium*. (*J. M. L.*).—We cannot name plants from leaves only.

THE HOME FARM:

POULTRY, PIGEON, AND BEE CHRONICLE.

HAY MAKING (FIELD HAY).—Continued.

IN preparing a stand or steddle to build ricks of hay upon, it is a good plan to use some stout faggots, so that there may always be a free circulation of air passing through them at all times after the ricks are made. For want of these, or some such materials to make the floor of a rick, we have seen large quantities of hay seriously injured by the damp rising into the rick during the winter months, and this is especially the case in low situations. It is also a good method of protecting the bottom of the rick to make a trench about 12 inches wide and 9 inches deep all round to take away freely all water which drips from the eaves of the rick. Some method of protecting the hay which is being stacked is requisite, otherwise in the event of a sudden thunderstorm serious damage may occur. We consider the outlay for the purchase of a large sailcloth and poles is money well spent, and if the poles are erected so that at short notice the covering cloth may be available, no hay need be damaged whilst the rick is building. The size and shape of the ricks is a matter of some importance; for although large ricks to contain thirty or forty tons may be best for the hay, there being less outside and waste, yet, when the season is catching, twenty tons are enough for one rick, as it is more quickly secured.

In the choice of a mowing machine several important points must be observed—viz., the size of the ridges upon which the grass is growing, for where the land is level those implements which took the first and second prizes last year at the annual meeting of the Royal Agricultural Society of England, are made by Samuelson and Woods respectively, must be considered the best up to the present time; but where the land lies in very small high-backed ridges other implements may be better. For

instance, it is stated that the mowers made by Burgess & Key will make the best work where the land is uneven caused by deep land furrows, but even to effect this the machine must be driven across the ridges in order that as little grass as possible may be left uncut in the furrows. In the former part of this article we referred to the making of hay principally in dry weather, recommending the continual exposure and constant moving of the hay by the tedding machine as the best means of securing the best quality. In wet and stormy seasons we advocate a plan nearly the reverse, for after the grass is cut, and the barometer indicates wet weather, we advise that the swathes should not be turned for several days after cutting. It is here and under these circumstances that hand labour must have the preference, and consequently turning the swathe without spreading abroad is the great essential to be observed, for when the swathe is merely turned some portion of the hay may retain its colour, although the outsides of the swathes may be washed and bleached. The next point to be considered is whether it is advisable to put the hay into small cocks, or pooks, after the second turning of the swathe. We think this matter must be considered a question of climate, for in the northern counties and Scotland it will be probably best to make small pooks first and then increase their size as the hay proceeds towards maturity. In the sunny south and eastern counties we consider it best to allow the hay to remain in swathe, and thus make available the first day of bright sun or windy weather for carting, and only by pooking the hay as fast as it can be carried to the stack.

The size of the ricks may be determined according to circumstances, such as the state of the hay, whether in first-rate condition or damaged by wet weather, also if it is required for sale or consumption on the home farm, and again if in an exposed situation. When hay is got up in fine weather and sufficiently made the ricks may be made large, but especially they may be of large size when the hay is intended for sale. In such a case, now we have the use of the elevator, the rick may be made higher, as there will be less outside and waste, and it will take less straw for thatching in proportion to the size of the rick. Should the hay have suffered injury from wet weather and the season be catching at the time of building the ricks a moderate size will be best, because they may be made and topped up safe on the day of making. The observations just made refer to ricks made long and narrow, which is probably the best shape under ordinary management, but we have sometimes made them round, and have often seen them in some of the midland or western counties of that shape. We see nothing to object to in making them in that form, particularly in exposed situations near the coast and on very high lands, the chief advantage being that round ricks take less thatch, which is not so likely to be blown off as the wind plays round the ricks, instead of striking it on broadside, as in the case of oblong ricks; besides which there is less outside and waste as compared with long narrow ricks. The only valid objection we have ever heard is that when the hay is required for sale it does not truss out for sale so well. This objection, however, entirely disappears when required for consumption on the home farm.

When the weather is very fine and the hay uninjured, with rain threatening, it is sometimes a good plan to secure the hay and get it into rick rather than trust it another day, although we may be aware that it is not made quite enough to prevent excessive heating. In this case there are several ways of proceeding, some applying layers of good sweet barley or oat straw over the rick whilst making, say ten or twelve hundredweight of straw to every two or three tons of hay. This will check the heat, and likewise improve the value of the straw as fodder; and in making ricks for home consumption there will always be a good use found for the straw in winter time, either for feeding the team horses or for fattening bullocks. The straw in such cases comes out of the rick with a fragrant aroma, almost equally attractive to the animals as the hay with which it was mixed. There is another method which we have adopted when we are uncertain as to the over-

heating of the rick. We fill a common sack full of hay trod in hard, and in the act of making the rick the sack is lifted up a little as every load is added, taking care to tread the hay firm round the outside of the sack, and if the sack is started from the faggots at the bottom of the rick the chimney which will be formed will give a free current of air through the faggots and up the chimney, and enable any excessive heat to escape without injuring the hay. There is yet another way to anticipate and provide for excessive heating of hay—that is, turn the rick over on to another stand at the end of five or six days, and in order to ascertain the state of the hay we use an iron rod as a probe about 12 feet long with a barb at the end, so that when introduced into the hay it will bring out a little piece and show you the exact condition of the hay. Even then it cannot always be ascertained as to the necessity of turning the rick; we therefore allow the probe to remain in the rick about six hours, and if the probe on being withdrawn cannot be held with the naked hand without extreme pain similar to burning, we may feel assured that the rick must be turned or receive serious damage by charring. In such a case the hay is no use for sale, and is damaged for home consumption. One of the best ricks of Dutch clover hay we ever had was found to be overheating at the end of five days, we then turned it over and reformed it into another rick alongside. We have done this with good results, and should never hesitate when the rick is too hot. We recollect an old farmer of Somersetshire stating that he did not consider you ever reaped the full profit and feeding value of hay unless the rick was turned twice. This is, however, carrying the matter too far, still it goes to show that it is preferred to overheating. When hay has received serious damage by a succession of rainy weather it becomes a question when stacking the hay whether any and what means can be resorted to with the view of improving and making the hay more palatable to the stock. We used to apply salt, but that is sometimes a very dangerous matter, for if there is the slightest wet or damp in the hay when carried to rick the whole will prove a mouldy mass such as no cattle will eat; we therefore recommend materials formed into spice and dredged over the rick, a portion to every load of hay. There is, however, a spice for flavouring damaged hay sold by Messrs. Simpson & Co., 54, Chiswell Street, London, which is well spoken of by those who have used it, and it costs about 2s. or 2s. 6d. per ton of hay. There are, however, several mixtures of spice as recommended for the purpose, but none more effectual than this condiment that we know of.

WORK ON THE HOME FARM.

Horse Labour.—In many instances the horse labour of the home farm is somewhat in arrear, owing to the succession of rains in part of April, all through May, and in fact up to the present period in some localities. In all those districts where these rains have prevailed it has been very difficult to obtain a good season for drilling the mangold and Swedish turnips, especially where the land was foul with couch or water grass. This is very much the case this year, particularly where the land is farmed upon the four-course rotation, because if any of the small roots of couch are left when the land is sown with Lent corn and at the same time seeded with clover these small pieces of grass will increase to an enormous extent before the land comes in course for fallow again. There are twenty-eight months when the wheat is sown out of clover lea which elapse before anything can be done towards cleaning the land; and strictly speaking this circumstance is one of great disadvantage in the four-lain system, especially where the land is well farmed, for the higher land is manured the more the couch will flourish and extend, particularly in sand or sandy loam soils.

The horses are yet engaged in cultivating for roots, and at every opportunity they will when the weather is favourable be employed the field hay to stack. The odd horse, or rather which is often found to answer the better purpose, is the employment of a good strong donkey or upstanding mule in the hoeing between the rows of mangolds, cabbages, and potatoes. The advantage of the use of a mule we have found to be that in horse-hoeing work it does not step so wide as a horse, and therefore does not tread the roots so much, and this is very desirable when common turnips or potatoes are grown close in the rows. The odd work of the farm can never be cheaper or better done than with a strong well-broken mule. These animals are very strong, scarcely ever suffering from many complaints and disorders to which horses are liable. They are, however, costly to purchase if you can obtain an animal of the right size and stamp with sufficient power. We have seen them from 18 to 14 hands in height, and they will then on level ground draw a ton weight without difficulty; again, these animals will endure a longer day's work than horses, and are especially adapted for odd work, being ready at all calls.

Not only the horse-hoeing of potatoes will be going on now, but also earthing-up or hilling. This should be done with the double mould-board plough or double turnfurrow attached to the horse hoe. We find sometimes it is a good plan to sow 1 lb. of greystone turnip seed per acre previous to the operation of hilling or earthing-up, which work lifts and buries the turnip seed on the ridges most effectively. The object of this system is to keep down

the weeds and produce a crop of cattle food in addition. When the potato haulm is struck down by disease (which it has been more or less upon some farms ever since the year 1845), the turnip plants having before made little or no progress, then make a rapid growth, and quite prevent weeds from increasing, which they certainly would do upon well-manured land, and before we resorted to this plan of sowing turnips we have often been obliged to mow the weeds or handpull them at great expense before we could dig the potato crop. It should, however, be remembered that in case the potato crop goes on to full maturity without the decay of the haulm that the turnips will have no chance to come to a crop, but it is only the loss of 1 lb. of turnip seed per acre, and it is therefore well to be prepared for the failure of potatoes at so small a cost.

Hand Labour will now consist of hoeing mangold, potatoes, cabbage, and such like crops; also mowing in the meadows, for we often find that the mowing machine is not always available, and particularly this is the case in water meadows or park-like pastures encumbered with timber. At intervals men will be employed by hedge trimming, also preparing ashes or chalk for drilling with the turnips, which are yet to be sown. Cabbage planting will also be going on, in which work the women will assist the men by carrying and laying down the plants.

The shepherd will now be required to use his utmost vigilance in order to detect those cases where before the sheep are shorn it is often found that the long wool is fly-blown and maggots produced. Many modes of destroying the maggots are in use, but we know of nothing so good as oil to apply to the part where the maggots have existed, particularly where the skin has been broken, as the oil will not only serve to heal the abraded skin, but will effectually prevent the fly striking again, as flies always avoid oil or oily substances. The application of mercurial preparations are sometimes used, but it is very objectionable, as it hardens and as it were ossifies the cuticle. The shepherd's care is often particularly requisite in washing the sheep before shearing, and in a running brook or river where the water is deep it is desirable not only to have no more than four or five sheep in the water at one time, but even then the man in attendance should take particular care that every animal should be passed to the washer in its turn, otherwise the sheep often sustain injury from being too long in the water.

THE POULTRY CLUB.

It is an acknowledged fact that undertakings which are started in a quiet and unpretending fashion, are generally destined to a greater amount of success than those which are heralded by a loud flourish of trumpets. If this be true we may augur well for the future of the Poultry Club. It is now towards a year and a half since the formation of some such society was first advocated in these columns. The idea was at once eagerly taken up by many correspondents, but, as is often the case, many of those who would write and talk fluently on the subject were not equally ready to give any practical assistance in the matter. We well know that the difficulties in starting clubs are very great. Those who have had any experience in them are aware that a number of formalities, which at the time seem unnecessary if not absurd, have to be gone through to avoid future difficulties and misunderstandings. For a time we feared that these had proved too great, and that in spite of the strong wish of a large body of fanciers to unite themselves in some way for mutual protection and to protest against certain scandals to which we will not revert, the scheme had collapsed, simply from the impossibility of deciding in what way they should best do so. Such, we are glad to find, has not been the case. We have now before us the list of the Poultry Club fully and formally constituted. It has officers and a Committee which must show it to be no party concern, and to begin with a list of 180 members, whose numbers are, we hear, being constantly increased. A good deal is already achieved. A body of fanciers, whose names must have influence, have formally allied themselves for the furtherance of poultry breeding, and specially, regardless of a good deal of opposition, to assert that they will do all in their power to prevent any sort of fraud in the exhibition of poultry. This, of course, is only a beginning, and a great deal of tact and judgment will be necessary for the Club to carry out at once gently and decisively the objects it has in view; still it is something that such a start has been made, and that without any of the ordinary puffing and advertising with which the crude formation of one or two societies has been announced, and without any pledges as to the exact scope of its future action. We make no apology for returning to what seem to us the most obvious and practical measures for the Club to attempt, because it is now presented to us in a definitely constituted form.

When any poultry or ornithological club is formed, generally the first thought of the members is to get up a show. Now we strongly hope, and have very good reason to believe, that the Committee of the Poultry Club have no such intention. Poultry shows have done, and will we trust continue to do, a great deal of good towards awakening interest in poultry breeding and improving the breeds of poultry, but they are already far too numerous; and supposing that the Committee of the Poultry Club, which is most unlikely, had the time to carry out a show, the financial

question is always a risk. The holding, too, of a single show on the best principles would not be likely to have very great influence on the morality of shows in general. Where the Club can have, and we believe will have, legitimate influence is in the improvement of existing shows. Its Committee has been instructed to draw up from time to time, as circumstances may require, rules for the good management of shows, under which committees are invited to put them. The first scheme of regulations is before us, and gives no uncertain sound. Exception may be taken to some of their wording and detail, which we know will soon be, if it has not already been, amended; but their general drift is that fraudulent practices, or the appearance of them, are to be carefully inquired into, and that if proved against an exhibitor they shall not be hushed up, but visited with the merited penalty of forfeiture of all prizes and exclusion from further shows.

We already see that the Hemel Hempstead Show—which seems started on the soundest financial principles, and which is therefore almost certain to be a success—is advertised to be held under these regulations, and we hear of other committees being ready to adopt them. This is encouraging, and we do trust that it will soon be shown, as we have always thought, that the dishonest exhibitors are very few. From the unfortunate condonation of the tricks of one or two of their numbers on notorious occasions public attention was so much attracted to them that an erroneous impression got abroad that poultry fancying must necessarily be connected with fraud. The sooner this is dispelled the better. We believe nothing but this vigorous effort of a large number of fanciers would have dispelled it, so firmly rooted it seemed in the minds of many people. There is something more, however, to be done than the framing of rules against fraud, or even their adoption by committees; they must also be carried out by them and by judges.

We rejoice to see the names of two judges whose experience is immense, and whose capability is universally recognised, on the list of the Poultry Club, as being evidence that they feel that through it their hands will be strengthened. In many a schedule we have read strongly worded rules against fraudulent practices, but when their application was required they always seemed to break down and the offender to escape. Now, we cannot and do not believe that this has been often or generally the fault of the judges. For the most part we lay these scandals to the charge of committees, fearful of offending an influential exhibitor whose entries would affect the balance sheet, or desirous of screening local exhibitors or friends. Now, if it can be managed for the odium of any necessary disqualification to be laid ultimately on the backs of a body too remote and impartial to care the least about it a great burden will have been taken off a judge's shoulders. We do not here touch upon the delicate question of one or two "improvements" such as the shaving of Spanish faces, which have become almost recognised; they will probably come under the notice of the Club. But where some undoubted trickery, such as plucking of hocks or carving of combs, is manifest, if a committee can boldly say, "We have accepted these rules, every exhibitor can read them, we are therefore bound to carry them out," we believe that judges will find themselves in a much more independent position than heretofore, and that a great stride will have been taken in the direction of suppressing fraud.—C.

THIS SPRING'S POULTRY REARING.

ON reading R. Teague's system in your number of June 13th one is surprised to find that any of his chickens survive such a pickling outside and in as he gives with carbolic acid, lime, camphor, pepper, and sulphur. Several years' experience with an average yearly rearing of two hundred chickens leads the writer to urge the necessity of plain living without condiments. Chemicals lose their efficacy if given as food, and condiments are best avoided when chickens are in ordinary good health.

To notice R. Teague's points *seriatim*. On ordinary dry soils coops without bottoms will be found healthier than boarded coops. A mixture of road grit and ashes may be used with advantage without quicklime, but the coops should be moved daily, or at the extreme, with R. Teague's mixture, every other day. The next point, water, is a fruitful source of evils if not changed several times daily and always kept shaded from the sun. Filthy water warmed by the sun breeds much disease. Camphor may be used as a remedy but not as a preventive. The writer has found the following food system very satisfactory. First day, custard of egg beaten up with a very little milk and set with heat. Cut groats are added until the fourth day, when the custard is ceased and boiled rice substituted. Barleymeal, oatmeal, and maize meal are gradually introduced with the boiled rice in increasing ratios. At the tenth day whole groats are used and broken rice not cooked. Wheat and buckwheat are gradually given in small quantities. From the very commencement a variety of green food is given, as, although grass is unequalled, we find a constant change gives good results and repays all trouble. Minced onion is a grand tonic and is often given both in the meal and otherwise. Mustard, cress, lettuce, or young cabbage shredded, and at intervals small quantities of boiled potatoes, are used, but not as

regular food. We feed as often as possible, say every two hours. Thus in the third week we give a morning meal of boiled rice and meal mixed with shredded onion; at 9 A.M. whole groats and lettuce; at 11 A.M. or noon broken rice and some green food; at 1 P.M. boiled rice or crust of bread soaked and squeezed dry; at 3 P.M. boiled rice and meal; at 5 P.M. whole groats and cress or lettuce, and a few grains of wheat or bran.

By experience we find that cleanliness, dry quarters, and as much change as possible of both food and locality, are the best preventives of disease. The extra trouble involved is very trifling, as a careful orderly system is in reality much easier to apply than a disorderly careless one. As to any extra expense, it will not amount to 6d. per head at the very outside, and this, it will be allowed, is a bagatelle as regards pure-bred stock.—C. B.

If the result of Mr. Teague's spring poultry-rearing has been the general experience this year I must consider myself particularly fortunate in my small way. It is some years since I kept fowls, but this spring I placed a sitting of eleven Cochins eggs under one Brahma hen, and ten Golden-pencilled Hamburgs under another. The former brought out nine chicks and the latter also nine, all strong and healthy. I lost one of each brood during the late damp weather, and a cat took one of the Hamburgs, but all the rest are thriving wonderfully. I have always given them a dry case to sleep in and a clover run, and have fed them on broken grits, sopped bread or crumbs, worms, and occasionally a little hemp seed.—J. S. DISMORE, *Gravesend*.

INCUBATORS.

A CORRESPONDENT, "S. W.," having applied to us for information on incubators, we approach the subject with trepidation, having burnt our fingers with them. We had difficulty in regulating the heat except where we had gas; where we had that we had little difficulty. We have never had any trouble in hatching. That may be done in the kitchen oven if it be filled with dry sand and the heat kept up. It is when the chicks are hatched the trouble begins. They lack the assiduous care of the hen during the first few days or hours of existence. This cannot be over-estimated. It is the lack of this that causes crooked toes, wry necks, and deformed backs. Monstrous joints are the result of chill afterwards. The real use of incubators is to hatch birds (Pheasants, &c.) during the heat of summer when there is no fear of cold. They are very useful when hatching on a large scale is necessary if a certain number be divided, half put in the incubator, the remainder under hens. They all come off at the same time, and may be all given to the hens.

We had experience of them many years ago when fancy had nothing to do with it, but the chicks were hatched, reared, and sent to market as an article of trade. If nineteen dozens of chickens were put up, eighteen naturally hatched and reared and one dozen produced by the incubator, a tyro could detect the latter from their deformities. They looked when alive like workhouse children—stunted in growth, with large heads and cute faces, large joints and small limbs. This applies to chickens hatched when the season and weather are unfavourable for rearing. They are being much tried in France. That most generally used is one patented by Messrs. Rouillier & Arnould of Gambais. Its principle is that of hot water changed sufficiently often to maintain the necessary temperature. Its price varies from £6 to £12.

VARIETIES.

A COMMITTEE meeting of the Poultry Club was held at Oxford during the show meeting. There were present the Hon. and Rev. F. G. Dutton, T. C. Burnell, and A. Darby. The following elections into the Society were made. Members—H. T. Bailey, Rose-dale, Tenbury, and Edward Hewitt, Sparkbrook. Associate Members—F. Parlett and T. J. Saltmarsh, Chelmsford; Mrs. Gordon, Salcombe, Sidmouth; Mrs. Lang, Knowle, Sidmouth; M. F. Smyth, Londonderry; T. A. Bond, Londonderry; P. Ogilvie, Hambledon, Hants; Miss M. C. Orr, Ecclesgreig, Montrose; and Miss C. E. Palmer, The Yews, Odiham.

THE English Jurors for the Agricultural section of the Paris Exhibition were entertained on the evening of the 12th at a magnificent banquet by M. Tesserine de Bort, the French Minister of Agriculture and Finance. Almost all the English Jurors for live stock and a few exhibitors were present. The salons of the Minister were afterwards thrown open, and M. Tesserine de Bort had a large assembly. It was curious and interesting to observe amongst decorated Senators and Deputies some of the most successful herdsmen in their quaint costumes.

WE regret to learn that the beautiful Early Wood poultry yard and pigeonries will not long be visible, and that those who wish to see them must do so soon. The lease of the place terminates at Michaelmas, and Mr. Cresswell will in consequence probably be obliged to part with a large part of his stock.

THE British Bee-keepers' Association will hold their fourth Great Exhibition of bees and their produce, hives and bee furni-

ture, and honey fair, at the Royal Horticultural Society's Gardens, South Kensington, in connection with the Society's flower show, on August 6th, 7th, and 8th, 1878. Silver and bronze medals are offered for hives of various forms, supers, bees, and liberal money prizes are offered for honey. Entries close July 27th, 1878. Rev. H. R. Peel, Abbott's Hill, Hemel Hempstead, is the Hon. Secretary, and who will thankfully receive donations for the prize fund.

DORSETSHIRE BEE-KEEPERS' ASSOCIATION.

THIS Association was established in November, 1876, by a few gentlemen interested in and practically acquainted with bee-keeping, for the purpose of introducing amongst the rural population of the county of Dorset a more humane and profitable system of apiculture. Bee-keeping has been hitherto, and is now in a great majority of cases, conducted in England on a most cruel and wasteful system. To obtain the stored-up honey ignorance knows no better than to smother the bees with brimstone and destroy and strain the honeycombs. As well might the farmer kill his sheep to get their fleeces, or the gardener fell his trees to secure the fruit. The means so adopted are wasteful in many ways. The stock is reduced, the combs are destroyed, and all the bees' labour in making them is lost. There is also great waste of material, for, be it remembered, a pound of wax, worth about 2s., costs the bees about 20 lbs. of honey to make. Again, the honey is contaminated with all the dirt of the densely crowded population, as well as crushed brood, young bees, &c., all go into the strainer that bulk may be increased; and last, not least, the inhumanity in destroying the industrious little creatures who have worked so hard for their cruel masters. To supersede this remnant of the dark ages enlightened thoughtful men have at various times designed and improved many hives and appliances, by use of which perfect command can at all times be had over the bees and their dwelling place, affording facilities for honey-gathering and removal in its natural, pure, and wholesome state without injury to the bees. The best means by which this is accomplished is by the use of what are termed "frame hives"—that is to say, hives in which the bees, instead of being allowed to fix their combs immovably to the walls of their dwelling, are forced to build the combs on moveable frames, the position and number of which can be varied at the will of the bee-master, so that he is enabled either to increase or take away from the number of bees in his hive, to notice at once when sickness or hunger is imminent, to extract the honey without destroying the combs, whereby the productive power of the stock is increased, and, in short, to perform numberless operations which could only be done with great difficulty or not at all with the old-fashioned straw skep bee hive. For details of frame hives and the operations that can be performed with them the reader is referred to the standard works on bee-keeping, and an hour or two would be well spent in perusing such books.

The English cottager is hard to move from adherence to old customs—that which his forefathers did he does. But the force of example is great, and to that the Association looks to gradually wean him from the custom of bee-slaughter and starvation; and when he finds his more enlightened neighbour acquires good and profitable stocks by means of bees formerly doomed to death, then will he begin to doubt the policy of his old ways, and perhaps improve on them.

There are few places in England where bees may not be kept with more or less profit, and it is not even necessary that their owner should have a garden—indeed it would require a very extensive garden to be large enough at all seasons to supply a single hive of bees with the desired nectar from its flowers. Not only from our flower beds do bees obtain their abundant stores, but from the myriad blooms on our forest and fruit trees, the gay luxuriance of the hedges and shrubs, and the unnumbered blossoms of our meadows and uplands—from these doth the busy bee cull the sweets we covet.

RULES AND REGULATIONS.

1. That the name of this Association be the Dorsetshire Bee-keepers' Association.
2. That its objects shall be the encouragement, improvement, and advancement of bee culture in the county, particularly as a means of bettering the condition of cottagers and the agricultural labouring classes.
3. That the officers shall consist of a President, Vice-Presidents, Secretary, Treasurer, and an acting Committee, three of whom shall form a quorum. The whole to hold office for one year and be eligible for re-election.
4. That the management of the Association shall be vested in the acting Committee, of which the Secretary and Treasurer shall be ex-officio members.
5. The annual subscription of members shall be not less than 5s., due and payable on the first day of January.
6. The Committee shall cause to be holden an annual apian exhibition at a time and place they may deem most suitable to the interests of the Association and its objects; and adopt such measures as they believe will most conduce to extend and improve a knowledge of bee-keeping so far as the funds of the Association will permit.

7. That an ordinary General Meeting shall be holden once in each year, when the officers for the ensuing year shall be elected, the accounts shall be audited, and questions of government of the Association be discussed and decided upon. An extraordinary General Meeting may be called by the acting Committee at any time, and shall be called by the Secretary within fourteen days upon receipt of a requisition signed by any ten members, stating the nature of the business for which the meeting is to be held.—(Extract from Society's Address.)

FOUR SWARMS FROM ONE STOCK.

I COMMENCED the past winter with three stocks of bees, of which I lost two, the remaining one being a strong stock in a 15-inch straw skep, and from it have issued four swarms in ten days. The first swarm came out May 28th, the second June 8th, the third June 6th, and the fourth on June 7th. The first and last are strong swarms, the second moderately strong, the third a mere handful, which has since died. I should have thought that one at least must have been a stray swarm were it not that I had positive proof to the contrary, for the three last swarms were seen leaving the hive; and although the first was not seen until it had settled, yet the condition of the stock was a sufficient indication that a swarm had issued from it.—R. CATT, *Gardener, Caterham Asylum, Surrey.*

[It is an uncommon thing for a hive to swarm four times in a season, but not an extraordinary occurrence. We hope that all the swarms will become strong stocks for another year.]

GOSSIP ABOUT BEE PASTURE.

MR. B.—Having heard, Mr. Pettigrew, that you have been on a visit to Scotland, I have come to learn what you think of bee-keeping and bee pasture there. As your visit was made in the middle of June, the season of swarming this year, you would naturally compare what came before you there with what you have been accustomed to see for many years in England.

MR. P.—Let me tell you first that I went to Carlisle near Lanark to seek health, and there I never forgot my errand, but walked about the town and rode up and down and over the parish a good deal. I was therefore able to form an opinion as to its eligibility for bee culture, but I did visit many of the bee-keepers. Those I knew forty years ago have all been swept away by the hand of time and a new race has taken their places. Two or three of the present bee-keepers spoke to me in the streets. One of them, James Somerville, told me all his hives had swarmed once and one of them twice. I ventured to make the remark that as the season is unfavourable he would do well to take no more second swarms. He then said, "I dinna ken, man, for second swarms here in 1876 rose in weight to 70, 80, and 90 lbs. each."

MR. B.—If second swarms reached that weight in 1876 the pasture there must be good.

MR. P.—Yes, it is good, and management too, but the pasturage of many other places is as good as that of Carlisle. This village stands on land 600 feet above the level of the sea. Some of the parish resting on the river Clyde (which runs through the centre of Lanarkshire) is probably 200 or 300 feet lower than the village, and the highest parts of the parish are probably 200 or 300 feet higher than the town. The soil is clayey, and the climate is cold save in the vale of the Clyde.

MR. B.—You consider the cold and ungenial climate there disadvantageous to bee-keeping?

MR. P.—Most certainly, the warmer the climate and the weather the better for bees.

MR. B.—When I read of a labouring man at Carlisle making £100 of bees in a season, and that another had realised £40 profit from nine hives, I could not avoid fancying that the pasture there is good. Has it any advantage or peculiarity over the parishes or counties surrounding it?

MR. P.—Yes; the orchards on the Clyde are probably the best in Scotland, and the best of the orchards on this river are in the parish of Carlisle on the north, or in the parishes of Lesmahago and Dalsell on the south side, all lying in the vale and on the banks of the Clyde. Magnificent and fruitful orchards they are. Many of "the banks and braes" of Carlisle parish that were covered with whins, bramble, and brushwood in my youthful days, then considered worthless—mere coverts for foxes—are now converted into fruitful gardens of great extent, which attract the attention and money of the large fruit-dealers and preserve manufacturers of Scotland. The fruits of the orchards on that part of the Clyde are sold annually by public roup or auction. The owners of the orchards arrange for the convenience of both buyers and sellers to roup them all in one day. One day is named for the gooseberries and currants; later on in the season the plums, pears, and apples are sold publicly. Strawberries have been introduced during the last few years, but hitherto they have been sold by private bargain at prices ranging between £100 and £150 per acre.

MR. B.—Do bees care for strawberry flowers?

MR. P.—No; but plum, gooseberry, cherry, pear, raspberry, and

apple blossoms yield honey in great quantity of the finest quality. The bee-keepers of Carlisle know this well, and therefore remove their hives to the orchards in spring, and leave them there till the swarming season. Fruit blossom being amongst our early flowers are of most advantage to hives that are well managed.

MR. B.—What do you mean?

MR. P.—If hives are well filled with bees in autumn their effective force in spring is great and able to store up much honey, while hives weak in bees have an uphill battle to fight for continued existence. In weak hives almost all the vital forces of the bees are required to attend to and hatch brood.

MR. B.—All you say stands to reason, though I have never seen it in that light before. I see now that hives strong in bees in spring have virtually a longer summer than weak ones.

MR. P.—Yes, and weather permitting they store up a large quantity of excellent honey from fruit blossoms.

MR. B.—What honey flowers come in after apple blossoms?

MR. P.—Sycamore trees come into flower before apple blossoms disappear, and continue a long time in flower if the weather be not very hot. In hot seasons they run to seed rapidly. The flowers of this tree yield honey in great quantity, and the bees have little trouble in gathering it, as it literally lies on the flowers, and is clammy to the touch of human hands. In the lower parts of Carlisle parish sycamore trees may be seen here and there. The day before I left Carlisle this time I visited the gardens of Maudslie Castle, which is well and beautifully wooded. The trees surrounding the Castle stand separate and alone. Amongst them I noticed many magnificent and lofty specimens of sycamores and limes. Beans and field mustard, both rich in honey, come in flower after sycamores, and last a long time in flower. Field mustard is the yellow weed that covers many of the corn fields of England and Scotland. Very little of this weed is seen around Manchester or in this part of Cheshire, but it abounds along the line of railway from Preston to Carlisle, and these places are 170 miles apart. It is a capital thing for bees. Beans, too, are excellent for bees, but they are not so abundant as field mustard. In some districts they are not grown at all. I saw one small field of them only in Carlisle parish, perhaps about 2 acres in extent. On going across the Clyde to visit some distant relatives in the parishes of Dalsf and Lesmahago I saw more beans growing that day than I have seen for thirty years. The land there is heavy—a yellow clay soil, in which beans are extensively cultivated. In some parts of Nottinghamshire, and perhaps elsewhere, some farmers sow their fields in autumn with beans, which help the bees much in early summer.

MR. B.—You consider that sycamores, field mustard, and beans are the principal honey plants in this country that flower between the times of apple blossom and white clover.

MR. P.—Yes; they cover the space of time you have named, and both beans and mustard last till white clover is well in flower. Often bees have mustard, beans, and clover to resort to at the same time. As mustard and beans go out of flower bramble bushes and lime trees come into flower, and thus give bees a very rich pasture in July; and as this is, generally speaking, the warmest month, hives become heavy and supers are rapidly filled. Bramble or blackberry bushes and white clover continue in flower a long time, but lime trees are soon over. After these come heather, which flowers in August and September, and which yields great harvests of honey of a strong and grouse flavour, which some people prefer.

MR. B.—You have not mentioned garden flowers, such as borage and mignonette. Are they not of some importance to bee-keepers?

MR. P.—Not much. If they were grown by the acre they would be valuable. I could name fifty plants that grow in gardens, fields, and woods that yield honey, and some that yield pollen, all waited upon by bees, but they are of comparatively little value compared with those I have mentioned. Bees like to go over the garden walls and hedges to the great reservoirs of honey—"the Lakes Superior" in the orchards, fields, and forests of Great Britain.

MR. B.—One question more. Do you think that the pasture of Carlisle parish, apart from the orchards on the Clyde, is superior to that of many other places in Scotland?

MR. P.—No. The greater part of Lanarkshire, Ayrshire, and Renfrewshire is in my opinion equal to Carlisle. Other parts of Scotland I do not know much about. In returning to England I could not help thinking the country around Carlisle, Penrith, Kendal, and Lancaster is somewhat like that of Carlisle from a bee-keeper's point of view.—A. PETTIGREW.

OUR LETTER BOX.

PREVENTION OF GAPS (Ayrman).—High feeding and plenty of green food, especially lettuce leaves, are the most effective treatment.

QUAILS (G. H. G.).—The Quails now brought over are birds of passage. They come to Europe to breed, and are caught in large numbers in Egypt on the way across. The first land they make in Europe is in Sicily, where they fall exhausted by thousands. Formerly the largest part of the bishop's income was derived from the sale of them. They come in immense numbers to France, Italy, Belgium, but they do not remain. They leave in the early autumn. They do not come to England or Ireland, yet there are Quails all the year round in both countries. They are found daily by sportsmen in Ireland and form part of many bags. They are found all the year round in

Cambridgeshire in sufficient numbers to be sent up by dozens in the winter months. They are also found in parts of Hampshire, and besides of them are not uncommon. Almost all other Quails will breed in confinement, these they are subject to disease of the eyes and suffer from parasites.

HIGH-COLOURED PLUMAGE OF CANARIES (A. K. C.).—To one egg boiled hard and pressed through a small sieve with a fine-wired mesh add a teaspoonful of cayenne pepper, which should be well mixed with the egg. Through the same sieve grate a biscuit—one about double the size of a crown piece. This latter operation will clear the meshes of all egg adhering to them. Mix the three ingredients together in a basin. Huntley and Palmer's tea biscuits are well adapted for use. Feed your birds twice a day with the food in such quantity that the food tin or earthen vessel may be continually supplied. Commence with the cayenne diet before your birds have passed the age of eight weeks, and continue the same until your birds have cast the whole of their nest feathers. During the moulting process, which will extend over another eight weeks, discontinue the use of seed if you wish to attain very high-coloured plumage in your birds. The purest and highest-coloured pepper is best. Avoid the brown pepper, and do not give green food, which will mar the effect of the pepper. With the cayenne diet the feet of the birds become more clogged with dirt than when seed is used, therefore freely use sharp grit sand upon the cage bottoms or slides. If the perches of the cages become soiled wash or scrape them.

CHANGING HIVES (B. A. White).—Drive the bees out of the old stock hive into the bar-frame hive as soon as you can do so conveniently, leaving the bar-frame on the stand of the old one; and if the first swarm is close beside the old one both lots could be driven and then united in the bar-frame hive, though it is not good management to drive bees from young combs so full of brood as those of your first swarm. If they remain separate for the time being feed the bees from the old stock as soon as these are hived in the bar-frame.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				
	Baromet. at 3 p.m. and Sea- Level.	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		Rain.
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1878.	Inches.	deg.	deg.	N.	deg.	deg.	deg.	deg.	deg.	In.
June.										
We. 19	29.940	63.3	58.7	N.	58.9	74.8	48.3	112.6	46.3	0.300
Th. 20	29.126	64.7	56.4	W.	56.9	74.7	46.6	111.8	44.0	—
Fri. 21	30.139	65.9	54.2	S.	57.0	75.7	46.3	136.4	48.3	—
Sat. 22	30.203	66.6	61.8	W.	58.5	75.7	50.6	130.2	46.8	—
Sun. 23	30.094	71.8	65.4	S.E.	60.5	80.5	50.6	102.5	61.8	0.378
Mo. 24	30.084	71.3	66.7	N.W.	60.6	83.4	56.0	124.6	52.6	—
Tu. 25	30.186	70.4	64.3	W.	63.8	83.3	63.8	122.1	60.7	—
Means	29.970	67.0	61.1		58.9	78.7	53.5	117.3	49.1	0.478

REMARKS.

- 19th.—Fine morning, heavy rain between 12.30 and 2.30; fine and sunny afterwards.
 20th.—Very hazy morning, fine and warm afternoon and evening; bright starlight night.
 21st.—Warm sunny day, a little cloudy at intervals; very fine evening.
 22nd.—Bright sunny morning, cloudy afternoon; fine evening.
 23rd.—Misty close morning with very heavy clouds. Thunder was first heard about 12.30 P.M., and lightning seen about 1; slight rain began at 1.32, it became heavy at 1.40, and from 1.44 to 2.12, or in twenty-eight minutes, upwards of 2 inches fell. There was a lull from that time until 2.46, when a second rain began, which only lasted sixteen minutes, but yielded 0.86 inch. The total fall was 3.28 inches in an hour and a half, by far the largest amount ever registered in the neighbourhood of London in so short a time.
 24th.—Very fine warm day; beautiful starlight night.
 25th.—Very hot, but rather dull and hardly any breeze.
 Temperature a good deal higher than last week. Last two days very hot and rather close.—G. J. SYMONS.

COVENT GARDEN MARKET.—JUNE 26.

THE late warm weather has made a great improvement in the supply of Strawberries, and this week will see the commencement of the outdoor fruit season, some good Kent Cherries being to hand, and Currants promised before the end of the week. Trade good.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	1	0	6	0	Grapes, hothouse	1	0	12	0
Apricots.....	dozen	1	0	3	Lemons.....	1	0	10	0
Cherries.....	1	0	6	1	Melons.....	each	4	0	10
Chestnuts.....	bushel	10	0	30	Nectarines....	dozen	12	0	24
Currants.....	1	0	0	0	Oranges.....	1	0	0	10
Figs.....	dozen	12	0	0	Peaches.....	dozen	6	0	24
Filberts.....	1	0	0	1	Pine Apples...	1	0	3	0
Cobs.....	1	0	0	1	Strawberries..	1	0	6	1
Gooseberries..	quart	0	6	0	Walnuts.....	bushel	5	0	8

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	0	0	0	Leeks.....	bunch	0	2	0	0
Asparagus.....	bundle	2	0	6	0	Mushrooms....	pottle	1	6	2	0
Beans, Kidney forced	100	0	6	2	0	Mustard & Cress	punnet	0	2	0	4
Beet, Red.....	dozen	1	6	3	0	Onions.....	bushel	2	6	3	0
Broccoli.....	bundle	0	9	1	6	Pickling.....	quart	0	4	0	6
Cabbage.....	dozen	1	0	2	0	Parsley.... doz.	bunches	2	0	0	0
Carrots.....	bunch	0	8	1	0	Peas.....	quart	2	0	0	6
Capsicums.....	1	0	0	0	0	Potatoes.....	bushel	3	6	7	0
Cauliflowers...	dozen	3	0	2	0	Radishes.....	bushel	5	0	7	0
Celery.....	bundle	1	6	2	0	Rhubarb..... doz.	bunches	1	0	1	6
Coleworts..... doz.	bunches	2	0	4	0	Salsify.....	bundle	0	6	0	9
Cucumbers.....	each	4	1	0	0	Scorzonera....	bundle	1	0	3	0
Endive.....	dozen	1	0	3	0	Shallots.....	1	0	3	4	0
Garlic.....	1	0	6	0	0	Spinach.....	bushel	2	6	1	0
Herbs.....	bunch	0	2	0	0	Turnips, new ..	bunch	0			
Lettuce.....	dozen	1	0	2	0						



